AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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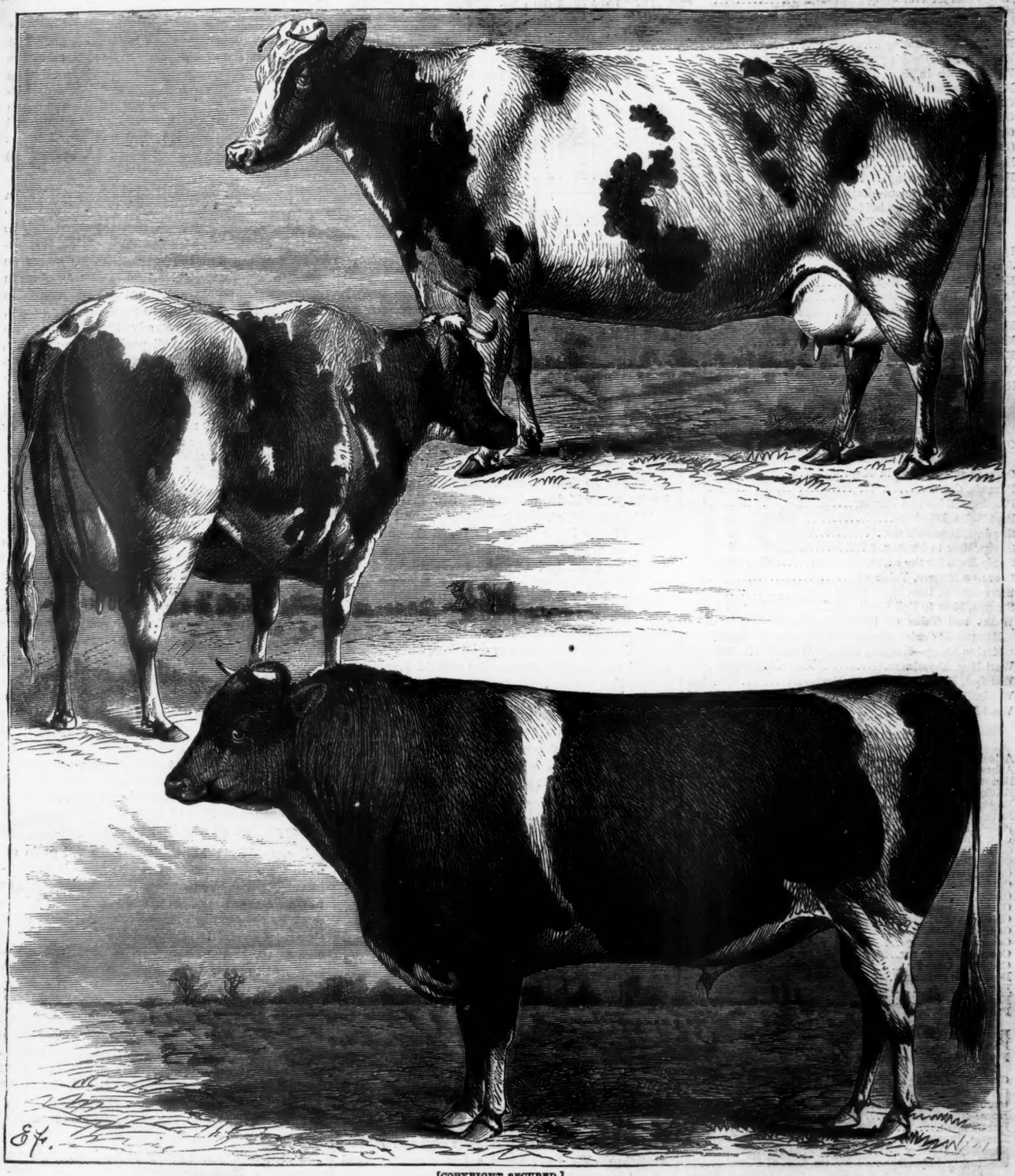

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DUTCH OR HOLSTEIN CATTLE.—IMPORTED BY J. T. ELLIS, ESQ., FLEMINGTON, N. J.—*Engraved for the American Agriculturist.*—(*See page* 169.)

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Calendar for May.

Day of Month.	Day of Week.	Boston, N England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	W	4 53	7 0	2 22	4 59	6 56	2 18	5 2	6 52	2 13
2	T	4 52	7 1	2 53	4 57	6 57	2 50	5 1	6 53	2 47
3	F	4 52	7 2	3 19	4 56	6 58	3 18	5 0	6 54	3 16
4	S	4 50	7 3	3 45	4 54	6 59	3 44	4 58	6 55	3 44
5	S	4 49	7 4	4 9	4 53	7 0	4 10	4 57	6 56	4 10
6	M	4 48	7 5	4 33	4 52	7 1	4 35	4 56	6 57	4 37
7	T	4 47	7 6	sets	4 51	7 2	sets	4 55	6 58	sets
8	W	4 46	7 7	8 26	4 50	7 3	8 22	4 54	6 59	8 17
9	T	4 45	7 8	9 29	4 49	7 4	9 23	4 53	7 0	9 18
10	F	4 44	7 9	10 26	4 48	7 5	10 20	4 52	7 1	10 14
11	S	4 43	7 10	11 19	4 47	7 6	11 13	4 51	7 2	11 7
12	S	4 42	7 11	morn	4 46	7 7	11 58	4 50	7 3	11 52
13	M	4 41	7 12	0 4	4 45	7 8	morn	4 49	7 4	morn
14	T	4 40	7 13	0 44	4 44	7 9	0 29	4 48	7 5	0 34
15	W	4 39	7 14	1 19	4 43	7 10	1 14	4 47	7 6	1 10
16	T	4 38	7 15	1 48	4 42	7 11	1 45	4 46	7 7	1 41
17	F	4 37	7 16	2 14	4 42	7 11	2 11	4 46	7 7	2 9
18	S	4 36	7 17	2 37	4 41	7 12	2 36	4 45	7 8	2 34
19	S	4 36	7 18	3 2	4 40	7 13	3 2	4 44	7 9	3 2
20	M	4 35	7 19	3 25	4 40	7 14	3 27	4 44	7 10	3 28
21	T	4 34	7 20	3 52	4 39	7 15	3 54	4 43	7 10	3 57
22	W	4 33	7 21	rises	4 38	7 16	rises	4 43	7 11	rises
23	T	4 33	7 22	8 33	4 37	7 17	8 27	4 42	7 12	8 22
24	F	4 32	7 23	9 46	4 37	7 18	9 40	4 42	7 13	9 33
25	S	4 31	7 24	10 50	4 36	7 19	10 44	4 41	7 14	10 37
26	S	4 30	7 25	11 42	4 35	7 19	11 37	4 40	7 15	11 31
27	M	4 29	7 26	morn	4 35	7 20	morn	4 40	7 16	morn
28	T	4 29	7 27	0 24	4 34	7 21	0 20	4 39	7 16	0 15
29	M	4 28	7 28	0 53	4 31	7 22	0 54	4 39	7 17	0 51
30	T	4 27	7 28	1 25	4 33	7 23	1 23	4 38	7 18	1 21
31	F	4 26	7 29	1 57	4 32	7 23	1 49	4 37	7 18	1 48

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
New Moon	7 8 35 m.	8 23 m.	8 11 m.	7 59 m.	7 29 m.
1st Quart..	15 11 21 m.	11 9 m.	10 57 m.	10 45 m.	10 15 m.
Full.....	22 6 24 ev.	6 12 ev.	6 0 ev.	5 48 ev.	5 18 ev.
3d Quart...	29 9 29 m.	9 17 m.	9 5 m.	8 53 m.	8 23 m.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1872.

The busy season is upon us. On our own farm we find more work to do in May and October than any other two months in the year. May is emphatically the "seed-time," October the "harvest." As we sow so shall we reap. Much of our success for the year will depend on our labor this month; and the amount, character, efficiency, and the economy of our labor this month will depend very much on the care, forethought, and wisdom with which we have laid our plans and prepared for their prompt execution. This is a lesson which every farmer of experience has had abundant opportunities to learn. He is the wise man who takes the lesson to heart. We can not now fully atone for past negligence or mistakes, but this fact should not discourage us. We should forget the things that are behind, and press forward. The man who never makes a mistake is to be pitied. The growing man, the man who is learning, the man who is destined to do something in the world, is the man who makes mistakes and profits by them. He tumbles down, but gets up and pushes onward. It is better to stumble than to stand still.

Hints about Work.

Take Care of your Health.—Few people realize what health is worth until they lose it. It is easier to prevent disease than to cure it. The character of our farming is undergoing great changes. We are using more machinery, keeping better stock, raising choicer varieties of fruit, grains, potatoes, roots, and grasses; are buying more or making better manure. Now, all this requires *brains*. We are aware that there is a great deal of nonsense written on this subject. But it is undoubtedly a fact that a man can not long use his brain as an intelligent, enterprising American farmer is now compelled to do, and work and worry at the same time, without abundance of nutritious food. If he undertakes to do it on fat pork, potatoes, bread, and cake, his health will certainly give way. The American farmer of to-day needs and must have more fresh meat. Better patronize the butcher than the doctor; better sell fewer eggs and buy less medicine. We have heard a farmer say: "Food that is good enough for my men is good enough for me." He may have been right. But the farmer who *thinks* and works too, needs better food and cooking than he who merely works with his hands.

Don't Take down the Stoves.—Keep a fire in the living room night and morning. If you have a good old-fashioned hearth, so much the better. Keep a good fire on it. Nothing is more pleasant or healthy. But do not think because you have a fire you *must* shut the doors. In most localities, until the land is better drained, people will suffer more or less from malaria. Hard work before breakfast should be avoided as much as possible.

Let the Children Sleep.—Our bright, active, intelligent American boys and girls need a good deal of sleep. Make them go to bed early, and *then* if they can sleep until breakfast-time let them.

Do not Work the Boys too Hard.—Ever since boys were, men have been inclined to abuse them. And the better the boy and the worse the man, the more likely is the boy to be "put upon." The poorest tools are given to him and the most disagreeable work. Did you ever know an average man who selected the hardest cows to milk and gave the boy the easiest? Did you ever know a man who would go for water and let the boy sit down and rest in the field while he was gone?

Live-Stock.—The animals on the farm need extra care and attention this month, and yet, owing to the pressure of other work, they are very apt to be neglected. Recollect that a farmer's success depends very much on the judgment with which he manages his live-stock. Almost any farmer can raise corn and potatoes, but not one farmer in ten has the qualities necessary to manage horses, cows, sheep, and pigs to the best advantage. It requires good judgment, a kind disposition, promptness, systematic regularity, a keen eye to detect the first symptoms of lameness, indigestion, want of appetite, sluggishness, want of vigor, etc. When one animal is taken sick, it should be taken for granted that, as a general rule, there is some defect or neglect in the food or management, not only of this one, but of all the others. At any rate, the matter should be investigated.

Indigestion.—In nine cases out of ten, especially with horses, sickness in animals is caused by *indigestion*. Want of grooming, dirty, ill-ventilated stables, starving one week and over-feeding the next, not feeding at the regular time when on the road and then giving too much grain when the horses are exhausted by fasting and labor, giving too much food at noon and too little time to eat it in, feeding immature grain and musty hay—these are among the causes of indigestion.

Sheep.—Do not turn out to grass too soon; and as long as the grass is succulent give a little hay.

Milch Cows.—At this season grass is often too succulent. There is not nutriment enough in it in proportion to bulk. And it will generally pay to give the cows in the yard some hay to eat during the night, and a little "cut feed"—say one peck of hay and two quarts of fine middlings—the first thing in the morning. A good cow at this season gives a generous flow of milk, and it is unwise not to supply her all the food she can digest.

Horses.—When horses have been fed grain all winter, and have not worked regularly, it not unfrequently happens that they have little appetite as warm weather approaches, and when put to hard work on the farm lose flesh rapidly. They need a change of food. If it is possible, give them a few carrots, or, in the absence of these, a bran-mash, sufficient to relax the bowels. If oats have been fed in the winter, give a little corn in the ear by way of change, varied with "cut feed," consisting of chaffed hay and corn-meal or fine bran, or, better still, oatmeal. As a rule, nothing is so good as oats—and this year oats are nearly as cheap as corn. Barley is also cheap, and by way of a change there is nothing better for farm horses than *boiled barley*. Boil it until it bursts open, and add a little salt and mix it with chaffed hay. There is nothing that will fatten a horse so soon as boiled barley.

Three-horse Teams should be used wherever pos-

sible. There is economy in it. One man can drive three horses as well as two. The "dead weight" of the implement is the same in either case, and as it not unfrequently happens that the power of one horse is expended in drawing the empty machine, wagon, or implement, three horses can do *as much again* real work as two. It is a great mistake to do heavy plowing or harrowing with two horses, and be compelled to let them rest frequently. Put on three, and keep them steadily at work. In harrowing, especially, a rapid gait is much more effective than a slow, dragging pace. Brisk, steady work, and fewer hours in the field, with better grooming in the stable, would accomplish more work with less fatigue to man and horse.

Swine.—The system of feeding should be adapted to the breed. No pig *can* grow rapidly on poor food. A well-bred pig will grow rapidly on good food—a poor-bred pig will not; and this is the real essential difference between them. If you starve both, the well-bred pig is no better than the other. Let young pigs have all they will eat and digest. The younger the pig, the more it will eat in proportion to live-weight, and the more it will gain in proportion to the food consumed. We commence to feed our pigs when two weeks old, placing a little trough where the sow can not get at it. The pigs are specially fond of boiled beets or mangels, mixed with cooked corn-meal or fine wheat-bran. Wean gradually, at from six to eight weeks old. Until from three to four months old, the pigs can hardly be fed too liberally. After that, and when running out at pasture, if they are unmistakably getting too fat, ease off on the grain. As a rule, however, all *young* well-bred pigs should have a little grain in addition to pasture, and the slops of the house and dairy. See that the pigs have access to fresh water. They may not drink much, but it should always be provided for them, no matter how sloppy their food may be. Provide ashes, salt, sulphur, and charcoal. Keep the pens and troughs clean.

Poultry.—Provide plenty of nest-eggs for the hens, and see that two do not lay in one nest or in the same nest with a sitting hen. See that everything is kept clean in the poultry-house, and that it is well ventilated. Whitewash frequently. Nothing is better for young chickens than curd, or bread soaked in hot water, placed outside the coop, where the hen can not get at it. Move the coops frequently, so as to keep the ground or grass clean. This is particularly necessary with turkeys. Avoid the common mistake of having the coops too small, and see that they are well ventilated. The great secret of raising ducks is to feed them all they will eat, half a dozen times a day, or more!

Corn.—Nothing is more important in raising corn than to secure a "good start." It is half the race. A fine, mellow soil is of the first importance. The best way to secure this depends on circumstances. Every farmer must determine this matter for himself. As a rule, we seldom harrow the land sufficiently. Corn can not thrive among clods. Our own practice, when planted in hills, is to soak the corn from twelve to twenty-four hours in warm soft water, and dry it with plaster. By exercising due precautions, the same thing may be done when sowing with a drill.

Corn-Fodder.—It is a great mistake to sow corn broadcast. Sow in drills 3½ feet apart, say four bushels of seed per acre, or a kernel about every inch in the row. The land must be as rich and mellow as possible. Use the cultivator frequently.

Potatoes.—Peachblows and other late varieties should be planted early. If you are late, plant the Early Rose or some other variety that ripens early. We have had a good crop of Flukes planted the first week in June. The Early Rose has a tendency to grow out of the ground, and should be planted deep, or else be well hilled up.

Mangel-Wurzel.—All things considered, we regard this as the best root crop for our climate. If the land is rich enough, and the plants get a good start, the severest drouth seldom hurts the crop. Sow in drills three feet apart, and thin out twelve to fifteen inches in the rows. It requires about four pounds of seed per acre. The earlier the seed is sown this month the better, provided the soil can be got in good condition. But it is better to wait until June, or substitute ruta-bagas, rather than to sow on poorly-prepared land.

Work in the Horticultural Departments.

The spring has been so backward that many of the operations which ought to have been finished last month, will have to be done in this. Many plants that have usually survived the winter with a little protection, will probably be found to be injured and perhaps in some cases destroyed. It will often be necessary to replant, and preparations ought to be made as early as possible, so that the trees may be set before they have started to grow.

Orchard and Nursery.

Planting.—If trees were properly heeled in last fall, they may be set several weeks later than they could, if taken from the nursery rows. The planting should be forwarded as fast as possible, so that the present season's growth may ripen properly.

Grafting, if done after the trees have started to grow, will require considerable care, as the bark slips so easily, that there is danger of injuring the trees by peeling.

Cultivating.—An orchard needs to be kept plowed and thoroughly cultivated, in order to produce the best results, and during the first few years after planting some crop may be raised between the rows; potatoes or carrots are good crops for a young orchard.

Mulching.—Too much can not be said about properly mulching young trees, especially the first season after they are set: it saves a great deal of work in destroying weeds, and during a dry season will often prevent trees dying.

Nursery Trees.—Those budded or grafted last summer, will be disposed to throw out suckers from the stock. These should be rubbed off, and not be allowed to get large enough to require cutting.

Seeds.—Plant all seeds as soon as possible, and keep the beds free from weeds. Young seedlings should be shaded as soon as up, taking care to use some kind of shelter that will allow a free circulation of air around the plants; a screen of laths is much used by nurserymen.

Insects.—War must still be kept up against all injurious insects, plans for destroying which have been given heretofore.

Fruit Garden.

As the fruit garden is only an orchard on a small scale, the directions for planting and general cultivation will be the same.

Strawberries.—Finish setting new plantations, and fork under the manure applied last fall.

Cuttings of currants, gooseberries, etc., may be set out in rows three feet apart, with six inches between the cuttings. After one season's growth they may be planted where they are to grow.

Currant bushes which have become sickly and unsightly from the want of care, ought to have the old wood cut back, so as to give light and air.

Raspberries and Blackberries.—Tie up the canes of last year's growth and cut away the old bearing canes, if not attended to last fall. Plenty of manure should be spaded under between the rows.

Grape-Vines.—If grape-vines have been left down until now, on account of frosts, and the shoots have pushed, great care must be used not to injure them. When vines are trained according to the arm system, the arms should be bent in the form of a curve, to allow the buds to start equally. Young vines, set out this season, should be allowed to grow only one cane.

Layers may be made by laying the canes in trenches until the buds start, when they should be gradually covered with soil, as the shoots grow.

Kitchen Garden.

In the warmer parts of the country, the early crops of hardy vegetables will be ready to gather this month, while in the more northern States the ground will not be ready to plant sooner than the first week in May. It is best to wait until the ground is warm and dry, before sowing, as a few days can not make a great difference in the harvest.

Asparagus may be cut from established beds, taking care not to injure the roots. If it is sent to market, it should be put up in bunches six to eight inches in diameter, according to the season, taking care to have the tops even, and when bunched, to cut the butts off square.

Beans.—Do not plant the pole and Lima beans until all danger from frost is over. A few rows of bush beans may be planted early this month.

Beets.—Sow a few rows very early, as they will stand considerable frost. The seed may be sown thickly, and afterwards the plants may be thinned and used for greens.

Cabbage and Cauliflowers.—Set out plants from the hot-bed and cold-frame, and sow seed for second early. As soon as the seed is up, sprinkle the plants with air-slaked lime, to keep off the fly. Plants that were set last month must be kept hoed, and liquid manure applied occasionally.

Carrots.—Sow a few rows for early, and put in plenty of seed, as it often comes poorly. Keep the soil between the rows stirred often, to prevent the growth of weeds.

Corn is a tender plant, and is easily injured by frost; therefore it should not be planted until all danger from frost is past. In garden culture plant in drills, allowing one foot between the plants.

Cucumbers, started under glass, may be set out as soon as the ground is warm; give them a little protection from the sun, during the day, by means of a newspaper, or pieces of board set around the hills. Sow for pickles next month.

Egg-Plants require more heat than most other vegetables, and ought not to be planted out until settled warm weather.

Herbs.—Sow seeds of Sage, Sweet Marjoram, Summer Savory, and Thyme, etc.

Leeks ought to be sown early, so as to get a good start before the dry weather comes on. Stir the soil between the rows, and thin if too thick.

Lettuce.—Sow seed for a succession, and set out plants from the hot-bed.

Martynias make one of the finest pickles we have, and if once tried, will always be grown. Sow when the ground is warm, and when large enough, transplant into rows, two feet apart, allowing eighteen inches between the plants.

Melons.—Treat as recommended for cucumbers.

Mustard.—Sow for salad in rows, 15 inches apart.

Nasturtiums.—Plant and give them the support of brush.

Okra.—Sow the latter part of the month where it is to be grown.

Onions.—Keep the beds sown last month clear of weeds, and loosen the soil often.

Peas.—Brush the tall varieties and keep them properly hoed. Plant more seed for a succession.

Peppers should be treated the same as egg-plants.

Potatoes.—Hoe as soon as up; plant for the second early crop. A great deal of labor may be saved, if the garden is large enough to allow of horse cultivation.

Radishes.—Sow for a succession, and sprinkle with air-slaked lime as soon as up, if insects trouble.

Salsify.—Sow thickly in drills, fifteen inches apart, and when up, thin to three or four inches in the row.

Spinach.—There ought to be several sowings of spinach for a succession. New Zealand Spinach should be sown in drills, and afterwards transplanted into rows, three feet apart each way; this is preferable to Spinach during the summer, as it is not so liable to run to seed.

Tomatoes.—Transplant as soon as the weather will permit, three or four feet apart each way, according to the richness of the soil. The plants

in neat gardens are trained to some sort of a trellis, and the vines pruned, to secure the best results.

Turnips.—Sow in well-manured soil, and as soon as up, sprinkle with ashes or air-slaked lime, to prevent the insects from destroying them.

Flower-Garden and Lawn.

Evergreens do best if planted this month, as this is the season when they commence their annual growth. In transplanting do not expose the roots to the sun and air, but keep wet and protect with hay or blankets, and set out as soon as possible.

Margins. — Cut the edges of beds, walks, and drives smoothly with an edging-knife.

Annuals. —Transplant from the hot-bed or window-boxes the young seedlings as soon as the weather becomes mild.

Perennials may be sown in a bed by themselves, and kept free from weeds. Sow seeds of those coming into flower as soon as ripe.

Bulbs.—Plant out Gladioluses, Lilies, etc., as soon as possible. Tuberoses should be started in pots in the greenhouse or hot-bed.

Climbers.—Provide supports for climbing vines, such as Sweet Pea, Cypress-vine,and Morning Glory.

Dahlias.—Start in the hot-bed, and set out the plants as soon as the ground is warm.

Lawns.—Mow often, in order to induce a thick growth of grass, and to keep down all weeds. Use the roller after a rain.

Greenhouse and Window Plants.

The latter part of this month will be early enough to put out house plants into the borders, and in order that the plants may not be put back in their growth, the ventilators should be opened, and during mild days the doors, so that the plants may be gradually hardened. Plants stored in the cellar during the winter may now be brought out, potted, and placed in the borders.

Camellias, when put out of doors during the season, should be shaded, or else placed where they will not be injured by storms.

Fuchsias seldom do well when planted in the borders, unless they have some protection from the sun; if planted out, they should be well staked.

Cuttings of shrubs may be made from the green wood as soon as it becomes a little firm.

Hanging Baskets make very pretty ornaments for a piazza, if they do not get the strong rays of the sun. They should be so arranged as to be moved up and down, to allow them to be watered easily.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending April 15, 1872, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th.	182,000	141,000	976,000	3,500	239,000	393,000
25 d's *last* m'th.	135,000	291,000	1,069,000	900	271,000	139,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's *this* m'th.	218,000	1,083,000	1,827,500	112,000	303,000	989,000
25 d's *last* m'th.	156,000	1,029,000	1,719,000	78,000	336,000	973,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1872	182,000	141,000	976,000	3,500	239,000	393,000
26 days 1871	261,000	473,000	827,000	13,000	121,000	295,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 d's 1872	218,000	1,083,000	1,827,500	112,000	303,000	989,000
26 d's 1871	283,000	1,413,000	1,336,000	25,000	292,000	795,000

3. *Exports from New York, Jan. 1 to April 13.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1872	217,000	1,378,515	3,579,949	170,520	——	8,730
1871	559,351	2,662,210	1,071,549	——	39,065	12,929
1870	291,329	2,336,354	67,593	6,709	——	5,818
1869	252,219	2,114,624	788,278	——	——	34,934
1868	205,245	515,889	2,893,946	158,822	——	24,407

4. *Stock of grain in store at New York.*

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1872.						
April 8	1,881,946	424,856	353,430	150,691	78,387	——
1871.						
April 10	811,871	180,947	150,964	164,398	709,363	171,897
March 18	1,825,785	204,888	160,514	329,349	1,183,897	218,231

Gold has been variable in price, having receded to 109⅞ and advanced to 110⅝. The closing quotation, April 13th, was 110⅜.....Breadstuffs have been moderately active. Flour has been in reduced stock, and decidedly firmer, particularly winter wheat extras, which have been offered with unusual reserve. Spring wheat has been without material changes in values, but closed weak. Winter wheat, on the contrary, has been much dearer and in quite urgent request, especially the better grades of red and amber, which have been purchased more freely by millers, in good part for use at the South. Corn has been in fair request, and closed stronger in price, shippers buying moderately. Rye and Barley have been depressed and lower. Oats have been quoted cheaper, leading to more extensive dealings, mostly in mixed Western.....Wool has attracted less attention, and prices have been quoted lower, though holders have not been willing to make important concessions. Manufacturers have been buying only to meet urgent wants.....Provisions have been in rather more demand, particularly hog products, which closed more steadily.....Cotton has been more active, and quoted higher.....Hay has been in demand at firmer rates.....Hops and Tobacco, in request within our range.....Grass Seeds have been dull and irregular.

CURRENT WHOLESALE PRICES.

	March 16.	April 15.
PRICE OF GOLD	110¾	110⅜
FLOUR—Super to Extra State	$6 00 @ 7 40	$6 65 @ 7 85
Super to Extra Southern	6 40 @ 10 50	6 80 @ 11 75
Extra Western	6 40 @ 10 75	6 95 @ 12 25
Extra Genesee	7 50 @ 9 25	7 90 @ 10 25
Superfine Western	6 00 @ 6 60	6 65 @ 7 00
RYE FLOUR	4 10 @ 5 10	4 10 @ 5 05
CORN-MEAL	3 50 @ 4 10	3 45 @ 3 80
WHEAT—All kinds of White	1 65 @ 1 90	1 75 @ 2 00
All kinds of Red and Amber	1 47½@ 1 75	1 47½@ 2 00
CORN—Yellow	68½@ 70	73 @ 73½
Mixed	67 @ 69	70½@ 73
OATS—Western	54½@ 56	50 @ 54
State	53½@ 56	53 @ 54
RYE	88 @ 95	85 @ 92½
BARLEY	70 @ 1 15	70 @ 1 12½
HAY—Bale ₱ 100 lbs	1 25 @ 1 65	1 35 @ 1 75
STRAW, ₱ 100 lbs	50 @ 1 10	50 @ 1 10
COTTON—Middlings, ₱ lb	22¼@ 22⅝	23½@ 24
HOPS—Crop of 1871, ₱ lb	35 @ 50	25 @ 65
FEATHERS—Live Geese, ₱ lb	70 @ 78	70 @ 78
SEED—Clover, ₱ lb	8½@ 9½	9 @ 9¾
Timothy, ₱ bushel	3 00 @ 3 50	2 12½@ 3 25
Flax, ₱ bushel	2 10 @ 2 20	2 10 @ 2 20
SUGAR—Brown, ₱ lb	8¾@ 10¾	8 @ 10¾
MOLASSES, Cuba, ₱ gal	19 @ 36	33 @ 38
COFFEE—Rio (gold, in bond)	14¾@ 17¾	13¾@ 17¼
TOBACCO, Kentucky, &c., ₱ lb	7½@ 15	7½@ 15
Seed leaf, ₱ lb	12 @ 50	10 @ 50
WOOL—Domestic Fleece, ₱ lb	70 @ 95	65 @ 90
Domestic, pulled, ₱ lb	57 @ 90	58 @ 85
California, unwashed	36 @ 50	33 @ 43
TALLOW, ₱ lb	8¾@ 9¾	8¾@ 9¼
OIL-CAKE—₱ ton	41 00 @42 50	40 50 @42 00
PORK—Mess, ₱ barrel	12 50 @13 25	13 25 @13 40
Prime, ₱ barrel	10 50 @11 00	10 50 @11 00
BEEF—Plain mess	7 50 @10 00	7 50 @10 00
LARD, in tcs. & barrels, ₱ lb	8¾@ 9¾	8¾@ 9¾
BUTTER—State, ₱ lb	20 @ 40	20 @ 33
Western, ₱ lb	10 @ 22	10 @ 24
CHEESE	12 @ 20	11 @ 19
BEANS—₱ bushel	90 @ 3 10	1 00 @ 3 40
PEAS—Canada, free, ₱ bu	1 20 @ 1 25	1 20 @ 1 25
EGGS—Fresh, ₱ dozen	23 @ 25	22½@ 24
POULTRY—Dressed Fowls	12 @ 20	11 @ 20
Turkeys, dressed, ₱ lb	14 @ 20	18 @ 26
Geese, ₱ lb	12 @ 16	13 @ 20
Ducks, ₱ pair	75 @ 1 50	1 00 @ 1 50
POTATOES, ₱ bbl	1 50 @ 2 75	1 75 @ 3 00
SWEET POTATOES, ₱ bbl	3 25 @ 4 00	3 75 @ 4 25
TURNIPS—₱ bbl	1 25 @ 1 75	2 25 @ 2 75
CABBAGES—₱ 100	6 00 @12 00	8 00 @16 00
ONIONS—₱ bbl	1 50 @ 3 00	2 25 @ 6 50
CRANBERRIES—₱ barrel	5 00 @12 00	10 00 @17 00
BROOM-CORN—₱ lb	3 @ 9	3 @ 9
APPLES—₱ barrel	1 50 @ 5 75	2 50 @ 5 75

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
March 18th	6,268	146	1,467	20,239	27,996	56,116
March 25th	7,671	115	1,310	14,818	28,087	52,081
April 1st	8,205	103	2,214	21,085	21,999	53,606
April 8th	6,990	164	2,124	13,682	24,2 5	47,215
Total in 4 Weeks	29,134	528	7,145	69,824	102,287	209,018
do. *for prev. 4 Weeks*	27,943	613	3,399	83,866	115,859	231,079

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	7,283	132	1,786	17,456	25,572
do. do. *last Month*	6,835	161	842	20,966	24,965
do. do. *prev's Month*	7,641	107	831	25,023	31,839
Average per Week, 1871	7,187	88	2,301	25,132	25,177

Beef Cattle.—Notwithstanding an average increase of about 400 cattle per week during the past month, there is a little improvement in price. The rates remained unchanged for three weeks, when drovers combined for a rise, as they had been losing money. After holding lots for several days in the yards, hoping for an improvement, owners were forced to sell at just about what the cattle cost in Chicago. Having eaten beef freely all winter, people are ready to turn to something else in the spring, and they now find substitutes in the abundant supplies of veal, eggs, fish, etc. Just now, with a strong holding back on the part of shippers, the rates are advanced ½c. ₱ lb., and stock is in demand again. Texan "longhorns" are coming forward more freely, some of them from Ohio distilleries, where they have taken kindly to slop-feed. The fat cattle have been exhausted in Kentucky. Our main supplies now arrive from Illinois, with fair supplies from Ohio and Missouri.

Below we give the range of prices, average price, and figures at which large lots were sold:

March 18, ranged 10 @14 c. Large sales 11 @12¾c. Av. 11¾
March 25th, do. 10½@14 c. do. do. 11¾@13 c. do. 12
April 1st, do. 10½@14 c. do. do. 11½@12½c. do. 11¾
April 8th, do. 10 @13½c. do. do. 11 @12 c. do. 11½

Milch Cows.—The fresh-cow trade does not improve in the least, though receipts have been lighter. Milk is abundant and low, cow beef hard to sell, and cows themselves too plenty for the demand. The greatest difficulty is found in selling poor cows, and, judging from the stock sent here, one would suppose the farmers had all combined to dispose of their worthless trash. A pen of this kind of stock—genuine scallawags—was just sold at $15 per head. Other poor cows sold at $25 @ $40; fair, at $50 @ $60; and good to prime at $65 @ $80.....**Calves.**—We have seldom seen the calf trade so completely demoralized. Not that the supply of live calves has been so very large, but because dressed have come forward so freely, while soft weather rendered it imperatively necessary to sell them at once. When a butcher was offered fat dressed calves at 10c. ₱ lb., he was not inclined to pay above 8c. for live. One large lot of dressed was sold at 5c. ₱ lb. A pen of 280 choice Bucks Co., Pa., live calves, 135 lbs., was sold at 8c. It is now too late in the season to send in dressed calves from any distance. Good to prime milk-fed live calves are worth 7c. @ 8c. ₱ lb.; common to fair sell at 4c. @ 6½c. Hog-dressed are worth 8c. @ 10½c. for milk-fed, and 4c. @ 6c. for small and thin veals.....**Sheep and Lambs.**—Sheep are coming forward sparingly, and are now improving. They ran down about ½c. soon after last report, and trade dragged heavily. This was owing to a dullness in wool, which led skin-buyers to reduce the prices of pelts about 75c. each. The skins had formerly been the chief recommendation for selling sheep, so quick did the pelt-buyers pick them up at $4.50 @ $5 each. Now it takes a fine lot of skins to reach $4. Lambs come forward sparingly this backward spring. They are worth $7 @ $9.50, each, on 16c. @ 19c. ₱ lb., live weight. Poor to medium sheep are quoted at 7½c. @ 8½c. ₱ lb.; fair to good at 8¾c. @ 9¼c.; and prime to best selections at 10c. @ 10½c.... ..**Swine.**—No hogs are now arriving dressed, and live come forward less freely. And still there is a decline of ½c. on live. Just at the close there is a scarcity, and prices of city dressed are ½c. higher than they were a few days ago. The consumptive demand lessens as warm weather comes on. Live are worth 4⅞c. @ 5c.; city-dressed Western, 6½c. @ 6¾c.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.....Post-Office Money Orders** for $50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and *take his receipt for it.* Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist,* 3 cents a quarter, in advance; on *Hearth and Home,* 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here.

Bound Copies of Volume Thirty are now ready. Price, $2, at our office; or $2.25 each, if sent by mail. Any of the last fifteen volumes (16 to 30) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and $12, may afterward send 10 more subscribers with only $8; making a club of 20 at $1 each; and so of the other club rates.

Castor Pomace. — "H. S.," St. Louis, wants to know the value of Castor Pomace as a fertilizer. The only analysis of this substance we know of was made by Prof. Johnson, and is as follows: Water, 9 per cent; oil, 18; fiber and mucilage, 33; nitrogenous bodies, 29; ash, 6 (the ash consists of one third phosphoric acid, and one third potash, magnesia, sulphuric and carbonic acids). As the pomace contains one third as much phosphoric acid and ammonia as ordinary guano, its value as a manure or as an article of commerce is proportionate. It is stimulating and rapid in its action, and therefore would be valuable as an article to enrich composts, or as an application for stimulating the early growth of plants.

Be Sure and Read the number of *Hearth and Home* for April 20. The information about medicines, humbugs, etc., is alone worth ten times the cost of the paper. It contains 16 extra columns on the libel suit, which will be found very instructive. Besides these it has a great variety of engravings and interesting reading. You can get it of any newsdealer for 8 or 10 cents; or for a dime, a copy will be mailed from this office, post-paid.

The "Lightning" Saw.—"Jas. J. D.," Sherbrooke, P. Q., Canada, asks if the saw described lately in the *American Agriculturist* is really what it is represented to be, or half as good. Our readers may depend on this, that no amount of money would secure the admittance of a notice to our editorial columns of anything which we were not satisfied is, so far as we can judge, exactly what it is represented to be. In indorsing the "Boynton Saw," we speak from actual experience of its merits, and believe its inventor will make good all he says. In the hands of any person who knows how to properly use a saw, we think it will do all he claims for it.

Culture of Beans.—"Vermonter" wants to grow beans, and asks what manure shall he put on, how shall he put in and how harvest the crop. A light dressing of barn-yard manure and twenty bushels of leached ashes per acre will benefit the crop. After plowing and harrowing mark out as for corn, two feet apart each way, and drop five beans in each hill. Keep clean with the hoe or cultivator. When the crop is ripe, it should be pulled, and stacked, if not quite dry, in tall, narrow stacks, around a stake driven in the ground, until dry enough to thrash. Rain or damp will cause mildew, and spoil the color and appearance of the beans and much reduce their marketable value.

Averill Co. Paint.—E. Evans, Somerset Co., N. J., asks what we know of the Averill Co. Paint. We know that it is put up in cans, all ready for use, and of any desired color; that it spreads easily, has good body, and a very beautiful appearance; that we have used it on inside and outside work, and found it so convenient and excellent, that we would not again go to the trouble of mixing up ordinary paints for any purpose, even at a much less price than the Averill paint can be procured for; and therefore we recommend those who are going to paint, to use it.

Section Roller.—"A Subscriber," Denver City, Col., sends us a cut of a roller, furnished with several flanges, which not only rolls the ground, but leaves a number of parallel channels, which serve to conduct water used in irrigation, over the land, and asks our opinion of it. As a simple and rapid means of doing this necessary work on the dry plains of Colorado, or anywhere where irrigation is practiced, it seems to be an implement that would save much hand-labor.

Charcoal-Dust.—"A Subscriber," Pine Bush, N. Y., asks if the charcoal-dust from old pit-bottoms will help a poor soil, in which nothing grows but sorrel. Charcoal-dust has no fertilizing property. It is not uncommon to see old pit-bottoms, twenty years old, as bare as the day on which the pit was burned. It would therefore do little good to spread the stuff over a field; it would be better to grow and plow under two crops of buckwheat. Lime would help this land, especially after the buckwheat was plowed in.

Purchasing Improved Stock.—"J. B. R.," Wayne Co., Ill., asks us if we would advise him to buy an inferior bull of thorough-bred stock at a low price, or if it would be cheaper in the end to procure a good one at a higher price. It would be best to get the most perfect animal that can be procured, consistent with the depth of the purse. It is not safe to expect stock to improve by using inferior specimens. The experience of breeders is altogether the other way, and no really good breeder would permit an inferior animal to leave his yards alive, for the reason that his reputation would be certain to suffer by it.

Broom-Corn.—"Farmer," Somerset Co., N. J., wants to know all about growing broom-corn and the best kind to plant. Broom-corn needs the same cultivation as Indian corn. It is often grown in the same field with corn by farmers who make their own brooms, and cultivated with it. Two quarts of seed are required per acre. Plants should be thinned to five or six to a hill; rich soil is needed to get a good yield. When the seed is just past the milk, the tops should be broken down one foot below the brush, and allowed to hang until ripe. It is then cut, dried, and the seed stripped off with a hatchel. 500 or 600 pounds per acre is a fair crop, and it is worth just now $40 to $160 per ton, the difference being altogether due to skillful handling, or the contrary.

Valuable Premiums.

(See also page **168.**)

Any person, anywhere, can obtain one or more of the valuable premium articles in this table, without money, by simply gathering a few names for one or both of the papers.

As a **constant Business Employment,** some persons *canvass all the time,* receive the premium articles, and sell them for cash, and thus secure large salaries. One lady has averaged over **$3,000** *a year* for years past, and others are getting large pay for their time, often **$5** to **$20** a day. Some who did poorly at first have, by perseverance, acquired the art of canvassing, and become very successful. The work is honorable. The Journals are useful in *every* family—in **City, Village,** and **Country.**

The *American Agriculturist* is everywhere known and approved. HEARTH AND HOME is now without a superior in the world as a *splendidly illustrated* Weekly Newspaper, for real value, cheapness, and adaptability to every home in America. The papers are *entirely different.* Taken together, they supply over **$35,000** worth of *fine engravings,* and more good reading than can be found in **100** books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of **both,** as noted over the Table. We call **especial attention** to the *last* column of figures, showing the small number of names required where *both* papers are taken, at the reduced price of $4 a year.

You, Reader, can get a Premium. TRY IT.

Explanatory Notes.

Read and carefully Note the following Items:

(*a*) All subscribers sent by one person count, though from one or a dozen different Post-offices. But....(*b*) Tell us with each name or list of names sent, that it is for a premium.... (*c*) Send the names as fast as obtained, that the subscribers may begin to receive the paper at once. You can have any time, from one to two months, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs.... (*f*) Specimen Numbers, Cards, and Show-bills will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk; otherwise it is not.

[In the following table is given the price of each article, and the number of subscribers required to get it *free,* at the regular rates, $1.50 and $3.00 a year, for the two papers; also at the club rates of $1 and $2.50: also at the rates of $4 a year for both papers together.]

N. B.—*In all Premium Clubs for either paper, TWO copies of American Agriculturist at $1.50 each, and ONE copy of Hearth and Home at $3.00, will count exactly the same. So also* **two** *copies of American Agriculturist at $1 each, and* **one** *copy of Hearth and Home at $2.50, will count exactly the same. In this way Premium Clubs can be made up from the 2nd and 4th columns, or from the 3d and 5th, or wholly from the 6th column.*

Table of Premiums and Terms, For American Agriculturist, and for Hearth and Home, for the Year 1872. Open to all—No Competition.		Price of Premiums.	(1) (2) *Or* (3) American Agriculturist. Number of Subscribers required at $1.50	at $1.	(4) *Or* (5) Hearth and Home. Number of Subscribers required at $3.00	at $2.50	*Or* (6) **Both** Papers together. Number of Subscribers required at $4.00.
No.	*Names of Premium Articles.*						
1	*Knives and Forks (Patterson Bros.)*	$14 00	21	70	11	35	13
2	*Knives and Forks* (do. do.)	$18 50	27	90	14	45	15
3	*Knives and Forks* (do. do.)	$22 00	33	110	17	55	19
4	*Knives and Forks* (do. do.)	$25 50	39	124	20	63	23
5	*Carver and Fork* (do. do.)	$5 00	13	37	7	19	8
6	*Fluted Steel* (do. do.)	$2 50	6	25	3	13	4
7	*French Cook's Knife, Fork, and Steel*	$3 00	8	30	4	15	5
8	*Pocket Knife* (Smith & Clark)	$1 50	4	....	2	....	3
9	*Pocket Knife* (do. do.)	$2 00	5	22	3	11	4
10	*Pocket Knife* (do. do.)	$2 50	6	25	3	13	4
11	*Ladies' Pocket Knife* (do. do.)	$2 00	5	22	3	11	4
12	*Multum in Parvo Knife* (do.)	$3 50	8	30	4	15	5
13	*Cake Basket (Lucius Hart Man'f'g Co.)*	$12 00	19	65	10	33	11
14	*Casters and Fruit Basket* (do. do.)	$30 00	44	140	22	70	25
15	*Revolving Butter Cooler* (do. do.)	$8 00	16	52	8	26	9
16	*Card Receiver* (do. do.)	$7 00	15	49	8	26	9
17	*Nut-picks and Crackers* (do. do.)	$12 00	19	65	10	33	11
18	*Half Dozen Napkin Rings* (do. do.)	$6 00	15	45	8	28	9
19	*One Dozen Teaspoons* (do. do.)	$6 00	15	45	8	28	9
20	*One Dozen Tablespoons* (do. do.)	$12 00	19	65	10	33	11
21	*One Dozen Table Forks* (do. do.)	$12 00	19	65	10	33	11
22	*Child's Cup* (do. do.)	$2 75	7	27	4	14	5
23	*Gold Pen, Sil. Case (George F. Hawkes)*	$3 25	8	30	4	15	5
24	*Gold Pen and Silver Case* (do. do.)	$5 00	12	37	6	19	7
25	*Gold Pen, Handle gold-tipped,* (do. do.)	$6 00	13	37	7	19	8
26	*Ladies' Gold Pen and Rubber Case* (do.)	$6 00	13	37	7	19	8
27	*Ludden's Patent Reroving Pencil*	$1 50	4	19	2	10	3
28	*Ludden's Patent Reroving Pencil*	$3 50	8	30	4	15	5
29	*Amwette*	$6 00	13	37	7	19	8
30	*Baby's Chair (L. O. Colvin)*	$4 00	9	32	5	16	6
31	*Parlor Kaleidoscope*	$7 00	16	52	8	26	9
32	*Moore's Floral Set (Moore Man'f'g Co.)*	$1 00	3	24	2	6	3
33	*Steam Engine*	$1 00	3	24	2	6	3
34	*Garden Seeds for a Family (40 kinds).*	$5 00	12	33	6	17	7
35	*Flower Seeds for a Family (100 kinds).*	$5 00	12	33	6	17	7
36	*Garden Seeds & Flower Bulbs (Selection).*	$2 00	5	22	3	11	4
37	*Set of Field Croquet*	$8 00	16	52	8	26	9
38	*Sewing Machine (Grover & Baker)*	$55 00	60	240	30	120	33
39	*Sewing Machine (Florence)*	$65 00	74	285	37	145	45
40	*Sewing Machine (Willcox & Gibbs)*	$55 00	60	240	30	120	33
41	*Bickford Family Knitting Machine*	$25 00	38	120	19	60	21
42	*Washing Machine (Doty's)*	$15 00	21	70	11	35	13
43	*Clothes Wringer (Best—Universal)*	$9 00	17	54	9	29	10
44	*Blanchard Churn*	$8 00	16	52	8	26	9
45	*Melodeon, 4-octave (G. A. Prince & Co.'s)*	$67 00	78	295	39	148	43
46	*Melodeon, 5-octave* (do. do.)	$112 00	128	400	69	200	76
47	*Piano, Splendid 7-oct. (Steinway & Sons)*	$635 00	650	1550	300	775	330
48	*Silver Watch (American Watch Co.)*	$40 00	50	150	25	75	28
49	*Ladies' Fine Gold Watch (Am. Watch Co.)*	$100 00	110	350	55	175	61
50	*Breech Loading Pocket Rifle*	$16 00	24	86	12	40	14
51	*Double Bbl. Gun. (Cooper, Harris & H.)*	$30 00	46	170	23	85	26
52	*Tool Chest (Patterson Bros.)*	$45 00	60	190	30	95	33
53	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$4 00	9	32	5	16	6
54	*Barometer (Woodruff's Mercurial)*	$10 00	18	58	9	29	10
55	*Barometer (Woodruff's Mercurial)*	$15 00	22	75	11	38	13
56	*Buckeye Harvester Mower*	$125 00	150	400	75	225	83
57	*Patent Cylinder Plow (R. H. Allen & Co.)*	$18 00	27	90	14	45	16
58	*Collins & Co.'s Cast Cast-Steel Plow*	$25 00	38	120	19	60	21
59	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54	9	27	10
60	*Cahoon's Broadcast Seed-Sower*	$10 00	18	58	9	29	10
61	*American Submerged Pump*	$15 00	19	65	10	33	11
62	*Pump and Sprinkler (Page's)*	$5 00	13	37	7	19	8
63	*Family Scales (Fairbanks & Co.)*	$14 00	21	70	11	35	13
64	*Building Blocks (Crandall)*	$2 00	6	20	3	10	4
65	*Pocket Lanterns (One Dozen)*	$9 00	17	54	9	27	10
67	*Worcester's Great Illustrated Dictionary*	$10 00	18	58	9	29	10
68	*Any Back Volume Agriculturist* — Unbound. Post-paid.	$1 75	....	20	....	10	2
69	*Any Two Back Volumes* do. do. do.	$3 50	....	32	....	15	4
70	*Any Three* do. do. do.	$5 25	13	37	7	19	8
71	*Any Four* do. do. do.	$7 00	15	47	8	24	9
72	*Any Five* do. do. do.	$8 75	17	54	9	27	10
73	*Any Six* do. do. do.	$10 50	19	61	10	32	11
74	*Any Seven* do. do. do.	$12 25	21	68	11	34	13
75	*Any Eight* do. do. do.	$14 00	23	77	12	37	14
	—(*Each add'l Volume at same rate*)						
76	*Fifteen Vols. XVI to XXX* — Bound. Post-paid.	$26 25	36	118	18	59	20
77	*Any Back Volume Agriculturist*	$2 50	....	24	....	12	3
78	*Any Two Back Volumes* do.	$5 00	....	36	....	18	6
79	*Any Three* do. do. do.	$7 50	16	48	8	24	9
80	*Any Four* do. do. do.	$10 00	18	60	9	30	10
81	*Any Five* do. do. do.	$12 50	21	71	11	36	13
82	*Any Six* do. do. do.	$15 00	21	82	12	41	14
83	*Any Seven* do. do. do.	$17 50	27	92	14	46	16
84	*Any Eight* do. do. do.	$20 00	30	102	15	51	17
85	*Any Nine* do. do. do.	$22 50	33	110	17	55	18
	—(*Each add'l Volume at same rate*)						
86	*Fifteen Vols. XVI to XXX*	$37 50	50	150	25	75	28
87	*Farmer's Boy's Library*	$5 00	12	33	6	17	7
88	*Farmer's Boy's Library*	$8 25	16	52	8	26	9
89	*Farmer's Boy's Library*	$11 25	20	65	10	33	11
90	*Farmer's Boy's Library*	$15 75	25	85	13	43	15
91	*Farmer's Boy's Library*	$20 00	30	142	15	51	17
92	*Any Back Vol. Hearth & Home (Bound).*	$4 00	9	32	5	16	6
93	*Any Two Back Vols.* do.	$8 00	16	50	8	25	9
	—(*Each additional Volume at same rate.*)						
94	*A $10 Library* (Your Choice) — All sent paid through by Mail or Express	$10 00	18	58	9	29	10
95	*A $15 Library* do.	$15 00	24	85	12	43	14
96	*A $20 Library* do.	$20 00	31	106	16	53	18
97	*A $25 Library* do.	$25 00	38	125	19	63	21
98	*A $30 Library* do.	$30 00	44	144	22	72	25
99	*A $35 Library* do.	$35 00	50	162	25	81	28
100	*A $40 Library* do.	$40 00	56	177	28	89	31
101	*A $45 Library* do.	$45 00	62	192	31	96	34
102	*A $50 Library* do.	$50 00	68	207	34	104	38
103	*A $60 Library* do.	$60 00	80	237	40	119	44
104	*A $75 Library* do.	$75 00	100	288	50	141	55
105	*A $100 Library* do	$100 00	125	360	63	180	70
106	*A Choice of Good Books.* (*See Description.*)	....	....	....	....	....	....
107	*Smoothing Harrow (J. J. Thomas & Co.)*	$25 00	38	130	19	69	21
108	**Beckwith Sewing Machine**	$10 00	13	50	6	25	10

☞ *Every Premium article is* **new** *and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums,* **Nos. 8 to 12, 23 to 28, 34, 35, 36, 68 to 91,** *and* **94 to 106** *inclusive, will each be delivered* **FREE** *of all charges, by mail or express (at the Post-office or express office nearest recipient), to any place in the United States or Territories.—(No.* **33** *mailed for 30 cents extra.) The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance desired. Full* **Description** *of each Premium* **sent free.**

Roofing Material.—"Inquirer" wants a roofing material in place of shingles, one which is fire-proof and durable. H. W. Johns's Asbestos Roofing is probably as good as any, where the roof is flat or of low pitch. It is easily applied—any farmer or workman of ordinary intelligence can put it on.

Manure for Quinces.—A Germantown, Pa., correspondent obtains good results from hog manure spaded in and a top-dressing of salt.

Average Crop of Beans per Acre.—"D. H. P.," Leavenworth, Kan., wants to know how many beans can be raised per acre, on the average. We have generally raised twenty to twenty-five bushels, but the average is probably not over fifteen. Few farmers do justice to this crop.

An Imperfect Ice-House.—"L. L. S.," Newburgh, finds the ice in his ice-house has begun to melt rapidly. He states there is a ditch communicating with the bottom of the house which probably admits air, and if so, it is doubtless the cause of the trouble. If any current of air is permitted to enter the bottom of the house, it rapidly raises the temperature and the ice melts. There should be a trap in all drains from ice-houses to prevent air from entering.

Sowing Plaster.—"D. B.," Manalapan, N. J., wants to know how much plaster should be applied per acre on clover, and when. One bushel should be spread evenly early in May, or when the clover has got a good start. Guano will be found a better application to strawberries than flour of bone, spread about the roots and raked in as early as possible.

Clark's Compost.—"Subscriber" asks for our opinion about Clark's compost from Manchester, N. H. We advise him to keep his five dollars and lay it out in ashes and plaster nearer home.

Horseradish.—"Ignoramus" is referred to article on page 133. As to land, rich light loam and plenty of manure will give the best returns. At the distances given in the article, it will take 14,496 sets to the acre. The roots are dug the fall after planting. Under the best cultivation, the yield is about five tons to the acre. Grinding is done upon revolving graters. R. H. Allen & Co., New York, make them. We can not tell about price—it is very variable.

Alsike Clover.—Wm. H. Joy, Muscatine, Iowa, wishes to sow some Alsike clover (*Trifolium hybridum*) for forage and as food for bees, and wants to know something about it. It is said to be adapted to moist soils, to grow rapidly, make good hay, and to be relished by cattle, but as far as we can speak from actual experience in one season it has no especial advantage over red clover as a forage crop, except that it will grow on moist soils, where red clover is subject to be heaved out by the frost. As bee pasture, it is recommended by some who have tried it; others again do not think much of it. The seed may be purchased at the seed stores, at 80 cents per pound, and four or five pounds are sufficient for an acre. It should be sown similarly to red clover.

A Tasteless Pump.—"P." asks what sort of a pump he shall use to avoid the unpleasant taste often given to the water. Cucumber wood (Magnolia) gives no taste, hemlock gives little or none, iron pipes, even when rusty, only flavor the water which stands in them; if that is pumped out, the fresh water is tasteless.

Where the Fashions come from.—Wherever the court of Fashion may be, her prime ministers are E. Butterick & Co., of New York, who "receive" in a fine structure at 555 Broadway. The building is 200 feet long and seven stories high, and is all occupied by their subordinates. Messrs. Butterick & Co. deserve the thanks of the community for demonstrating that in dress, as in other things, simplicity and utility are first principles in æsthetics. In the sanctum where *the fashions are made*, are a number of women intently studying the outlines of magnificent garments of—tissue-paper. They imagine and then embody new effects in form, style, color, and arrangement. The fashion of a garment having been decided on by the designer, the conception finds form in paper, and if accepted, a duplicate is made in cloth and fitted to a living model, and its merit proved by actual trial.

Other departments are devoted to different branches of the business, such as sketching and drawing, engraving for publication, editing, making up, and printing the "Metropolitan," the fashion magazine published by this house. The mechanical part of the work is completed in Brooklyn, in a separate factory, a building 50 × 100 feet, three stories high, and all occupied with the peculiar details of grading, cutting, arranging, folding, and preparing the patterns for the salesrooms. One hundred and fifty persons find constant employment in this department, but the total number of *employés* of the house is about 300.

The whole is completely systematized, and so confident are the proprietors of the exactness of their work that, though they cheerfully pay for all material spoiled in cutting through fault of the pattern, they have had but two such cases occur in the many millions of patterns they have sent out. Their arrangements enable ladies in all parts of the country to obtain, at very moderate cost, patterns for any garment, in the best styles, which may be relied on. It gives us pleasure to say that the cardinal principles which form the groundwork of the fashions of this house are neatness, feasibility, cheapness, and, above all, harmony; and as a consequence they have become the dictators of the *modes* for our country.

To Improve a Meadow.—"J. W. S." has a field in pasture, which needs renovation; he proposes to plow it and sow to rye, and seed with timothy, and pasture the rye with sheep, early next spring. This may do, if the field is plowed and harrowed twice during the summer, but it would be preferable to dress the field with manure, sow six quarts of timothy and clover, and harrow it well, without plowing.

Grubs in Cattle.—"A. M. K.," Mansfield, Ohio, can expel the grubs from his cattle by pressing the lumps on their backs between the finger and thumb, when the grubs will be forced out. They should not be killed in the skin, or they will make sores. Turpentine will have no effect but to irritate the cattle.

Harrowing Winter Grain.—"R. W. B.," Victor, N. Y., asks if harrowing his winter wheat will injure the young grass (timothy), and whether once harrowing is sufficient. One harrowing is sufficient; we have for several years harrowed our winter grain in the spring, and never found the timothy injured by it. Spread plaster about May 1st; it should be kept on the surface.

Lime for Corn in the Hill.—J. P. Johnston, Wilmington, Pa., asks if it will pay to put lime in the hill when planting corn. No. The great benefit of lime is to help decompose the sod, and it needs to be applied as soon as the ground is plowed, and as long before the corn is planted as possible. A more stimulating manure would be preferable at planting time, as hen or hog manure, superphosphate or guano.

Tobacco Stems.—J. B. Schneider, Kankakee, Ill., asks if it will pay to use tobacco stems for manure. In New England the stems are carefully collected, and composted as manure, and if it pays there, it ought to in Illinois.

Cost of Fence Wire.—"E. D. C.," North Star, Pa., wants to ascertain the cost of a wire fence. As he does not state what sort of a fence he proposes to build, we give him the price of the wire, when he can figure out the cost of the fence he needs. No. 9 wire is 10 cents per pound, and weighs one pound per rod. Staples are about 12 cents a pound.

Buckwheat Fallow.—H. B. Cameron, Bealton, Va., asks if it would benefit "their cornland" to plow in two crops of buckwheat before seeding to wheat. Yes, the effect would be to add some fertilizing matter—although it is not very much—clean the land, and improve its texture.

Cotton-seed Meal.—Mrs. "W. B. K.," Illawara, La., writes her experience about cotton-seed meal for cows. She has used it for one year, and finds it makes rich milk and sweet, yellow butter. Mixed with wheat-bran the cows will eat more of it than alone.

Buffalo Bull-Calf.—"P. B. B." wishes to procure a buffalo bull-calf, if he knew where to get one. Unfortunately we can not help him, and, except as a curiosity, would not advise him to go to much trouble or expense to get one.

Plowing New Ground.—"S. B. S.," Patterson, Mo., asks if he should plow newly cleared ground before growing grass seed. By all means, get the ground into as mellow a state as possible, if you desire the grass to succeed well.

Devon Cattle.—"C. B. S.," Wayne Co., Mo., asks the price of Devon cattle. The general price is about $100 per head for young stock, and $250 to $300 for mature animals, unless of superior character, when the value is dictated by the estimation in which the owner holds them. For prices of fowls write to any of those who advertise in our columns.

Efflorescence on Bricks.—"M. A. H." Little York, Washington Co., Ind., sends a sample of a substance with which in that vicinity bricks made of clay become incrusted. The sample sent is an impure nitrate of potash, and is doubtless due to the presence of potash and some organic matter in the clay. Clay, when produced from feldspathic rocks, often contains free soda or potash, and the efflorescence sometimes seen on bricks is thus occasioned.

Leached Ashes and Hen-Manure.—"W. H. W.," Evansville, Ill., has thrown leached ashes into his chicken-house, where they have become well mixed with the manure; he asks, if the mixture will be good for cabbages. Yes, or for any other c

How much Manure to the Acre?—"S. J." asks how much stable manure, at $1.50 per load, he shall apply to the acre. It depends on the crop. Twenty loads for grain or potatoes, while corn, turnips, grass, or cabbages will bear double that quantity. Manure in too great abundance often causes grain crops to lodge or rust, and potatoes or peas to run to stalks.

Plaster on a Meadow.—"F." asks if it would benefit his meadow to sow plaster on it, enough to pay him for drawing the plaster twenty miles. If the time can be spared as well as not, the advantage gained would repay for the trouble. A bushel of plaster per acre has sometimes doubled the crop of hay, and almost always has proved very useful.

Cure for Cribbing.—"W. E. H.," Dunleith, N. Y., sends the following cure for cribbing—viz.: Take one pound of common soap when soft, and work it up with the hands with two ounces of cayenne pepper, and rub the manger, neck-yoke, etc., with the mixture. This cured his horses.

SUNDRY HUMBUGS.—The "Electro-Magnetic Curling Comb" swindle, denounced in these columns twice before this, has had an extensive run, and multitudes have been cheated out of $1.25 each—because religious and other respectable journals have given it the use of their columns, often in editorial items. False engravings and false statements have been widely issued, and the rascal, hailing from Garrettsville, Ohio, has by these means coined money rapidly. Samples of these combs are before us—cheap little common horn combs, 3 inches long, worth a few cents only, having a bit of zinc and copper bound upon the sides with a small copper wire, and of no utility whatever. A line at the end of the "directions for use" says: "The Electro-Magnetic Curling Comb *must be used* ONLY on FALSE hair," though nothing of this is hinted in the showy, taking advertisements. Those journals which have unwittingly or carelessly (and therefore reprehensibly) helped on this swindle, should make all amends possible by promptly denouncing the cheat—*stealing* is the proper word—and thus help stop it.....A standing caution: ☞ Beware of "Sunlight Oil," "French Burning Oil," and of "rights" to make them, and of the other things advertised along with them. This caution applies to all cheaply manufactured, so-called burning oils or compounds. You will be *burned* if you touch them..... Wood & Co., Mt. Vernon, N. J., ought to be avoided by everybody having an ounce of brains. There must be a good many having less than this amount, or he would not continue to get money enough from his offered vile and nonsensical wares, to keep him going as he does..... J. H. Reeves, 78 Nassau street, is trying the confession and affectionate dodge, and pretended exposure of other humbugs, to work himself into the confidence of nervous people and get their money. He changes his operations and tactics often, but clings to his old name, that was long since synonymous with humbug.....The "College of Health" is a name adopted by a swindler. .....Only poor deluded people will trust their health and lives to the medicines of "Dr. F. E. Andrews, 360 Lexington avenue, N. Y.," "Edward P. Huylar, M.D., Thompson street, N. Y.," "Dr. Abel King, Broadway, N. Y.," or any single one of the advertising "doctors" and medicine-makers whose circulars, advertisements, 20 to 90-page pamphlets, etc., with pretended recommendations of high personages, have been sent to us by the score, with inquiries as to their reliability. They are to be avoided *without exception*.....Is it *cheap*? A nice-looking paper sent a whole year for ten cents, and to large clubs for five cents! The big hand-bill says so. An examination reveals the fact that it is published once a qxarter, and that it is really an advertisement of a plaster that will cure all the ills that flesh is "air to."..... The "Dollar Stores," when not swindles, as are most of

them, especially those that receive orders by express or mail, are just like any other stores, only they put a lot of showy articles together that they will sell for $1, and they are seldom *cheap* at that price..... All the "cheap watches" for $1 to $5, by tickets or otherwise, the magnetic time-keepers, etc., are humbugs. Never buy a watch except of a known party, whom you can reach readily, and compel him to make good all he promises for it.....It is strange that some very respectable people should write to us asking about reliable agents for the Havana and other lotteries. Every lottery, even if genuine, is a cheat. It takes a great number of people's money, pockets half or more, and then gives these people a chance to cast lots for what is left. All gift enterprises are similar in character and results. St. Joseph, Mich., has a flaming one (on paper); Boston has a lottery called the "Women's Homestead League," ostensibly managed by a "goddess of the morning," Aurora C. Phelps. We have a lot of presented tickets, between the numbers 42,000 and 47,000, for sale cheap! We can't impose on our friends by giving them away.....Among other lotteries to be let alone, is the sale of the "Mount Florence Estate," to be sold in 55,000 dollar shares. Wonder how many of these "shares" are to be given to editors to advertise it?.....The Sawdust operators are getting thick again, with the new dodge of receiving letters "for safety" in some other city (where Mr. Gaylor can't watch them so closely *they* think), but still claiming that their head-quarters is in New York. They are all similar. Among them are Turner & Wells, 220 Chestnut st., and J. T. Spencer & Co., 10 South st., Philadelphia; D. H. Dayton and R. S. Turner, Williamsburgh, N. Y.; Sidney Messenger, cor. Broadway and John street, New York; Noah Judson & Co., 109 William st.; C. E. Penn, 98 Bowery; J. P. Gurney, *alias* J. P. Strange, *alias* Austin Chipman, *alias* Dr. Wm. S. Cody, *alias* M. O. Doane, all of 16 S. 5th ave., New York; G. M. Washburn, 3 Beekman st., etc., etc. (A gentleman of Barre, Vt., in sending this last, says, "Go on in your good work of exposing humbugs; for although you may not think it needed, it is saving thousands of dollars to the laboring class of our country"—yes, hundreds of thousands!).....To "Subscriber": Yes! you might cut out a thousand just such advertisements, and 999 of them would be humbugs.

Seeding to Grass after Corn.—"A Subscriber" asks if he can get a crop of corn off from the ground in time to seed down to grass in the fall, and cut hay the next season. Not under ordinary circumstances; but if the ground is very rich, clean, and made mellow, and the grass seed sown not later than the middle of September, it may be done. Grass and clover have been sown on such land in the spring, and mowed for hay the same season.

Twin Cattle.—F. F. Vasey, Dunn Co., Wis., corroborates the assertion that twin cattle are not necessarily barren, he having twin cows seven years old which have had five calves each.

Lime and Salt Mixture.—"D. V. H.," Washington Co., Ill., asks how lime and salt should be mixed for applying to wheat, and when it should be applied. Slake the lime with a quantity of water in which salt has been dissolved until it can take up no more, sufficient to reduce the lime to a fine dry powder. Five or six bushels per acre of this mixture may be spread early in spring over the wheat. Its effect is generally to stiffen the straw.

Price of Chemical Manures.—A "Reader" is informed that the following articles can be purchased in New York at the prices mentioned—viz.: Nitrate of Soda $10, Nit. Potash $15, Sulph. Potash $12, Sulph. Ammonia $10—per 100 pounds; Superphosphate of Lime $45 to $60, Ground Bone $35 to $45, per ton. For dealers' names, see advertising columns.

Cotswold Sheep.—John Irwin, Buchanan, Mich., has purchased a Cotswold buck, but he is not satisfied with his appearance; his wool is long and grows on his foretop, but his legs are of a brownish color. This answers to the description of the Cotswold, excepting the color of the legs, which may be due to his having been kept in a dirty pen, which at this season often causes the wool to be stained.

Concrete Buildings.—"L.," Eastwood, Lucas Co., O., asks if the walls of concrete buildings need to be lathed before plastering. No; these walls are absorbent, and do not condense moisture on the surface.

Washing Fruit-Trees with Lye.—"T. W. S." asks when is the best time to wash apple-trees with lye, and whether it is good for peach-trees.—The object is to kill moss, lichens, and other parasites, as well as the eggs of insects, and the best time is early in the spring, and repeat as often as is necessary to effect the object. It is a very old remedy. Carbolic soap added to the lye is a great improvement. We have this spring gone over all our apple-trees with it, using say half a pound of the soap to a gallon of lye. It is as beneficial on peach-trees as on apple-trees.

Which Stock?—"A Subscriber," Adams Co., Pa., wants to improve his stock; he wants that breed which will grow large and quickly, and be pretty good milkers; he does not like the Jerseys or Devons, as they are too small. The Durham or Shorthorn would suit him. In his county there should be pasture sufficient to raise this stock, which grows quickly to a large size, but needs correspondingly good feed.

"Quack" Grass.—M. J. Hughes, St. Lawrence Co., N. Y. There is no way of getting rid of "Quack" grass but plowing and harrowing, and picking up the roots and destroying them; mere plowing and harrowing tends to increase the evil.

A Six-Acre Farm.—"J. C. S." has six acres of land, twenty-five miles from market in Central Ohio, and wants to know what he had best do with it; land is dry and rolling. Market-gardening would doubtless be better than poultry-raising. Get Peter Henderson's Gardening for Profit for $1.50, and follow his directions.

Mulching with Wheat-Chaff.—"I. F." asks if wheat-chaff will compact so closely when used as a mulch for fruit-trees, as to injure them. There can be no danger of this; chaff is a good material for a mulch.

Share's Horse-Hoe.—"F. R. K.," Gallia Co., Ohio. Share's Horse-hoe and Perry's Scarifier are both excellent implements; the first is suitable to a greater variety of uses than the second—for that reason we prefer it.

Brittany Cattle.—A few months ago it was stated in these columns that we knew of no herd of Brittany cattle in the country. We have since learned that the Hon. Charles L. Flint, Secretary of the Massachusetts State Board of Agriculture, has for some years been breeding the Brittany cattle, but we are not informed if he has them for sale.

Wood Ashes.—"C. L. J.," Saybrook, O., has 100 bushels of unleached wood ashes; can he use them to most profit on clay land, or on sandy land to be seeded to clover?—The effect of wood ashes in considerable quantities, as 50 to 100 bushels per acre, is to make clay lands looser in texture, and sandy lands more compact. In small quantities these effects would not be very apparent. In any other way, either soil would be equally benefited, though probably the light soil may need them most, on account of the seeding to clover. Ten bushels per acre, sown in spring, would be a proper quantity under above circumstances.

Potatoes after Corn.—A friend, whose garden consists of a heavy clay soil, says he "forks up his corn-stubble into ridges in the fall, burying all the stalks and leaves in the trenches, to make the soil mellow for potatoes as the next crop. I cut the stalks into pieces about eight inches long, so that they will rot and supply potash to the potatoes." Corn-stalks *do* contain about three times as much potash as wheat straw; but we apprehend the advantage of the above plan is due to ridging and mellowing the soil rather than to potash.

Artesian Wells.—J. F. Smith, Sand Point, Texas. It is impossible to tell the cost of an Artesian well, or of the implements necessary to bore it, unless the depth is known. This can only be ascertained by an experiment, which after all may be a failure, but if successful, is a guide for others in the same locality. The experiment, therefore, should be a joint affair.

Grub in the Head.—"D. M.," Ulster Co., N. Y., has lost some sheep by grub in the head, and wants a remedy. Tobacco-smoke blown up the nostrils of the sheep has sometimes been effectual in dislodging the grubs; it is not often that sheep die with grubs, though they are often annoyed by them. To prevent them, keep the sheep's noses smeared with tar during the warm summer months, when the fly abounds.

Preventing Hill-Sides from Washing.—"J. T. J.," La Crescent, Minn., asks, if a hill-side is sowed to clover, whether the clover roots will prevent washing of the surface?—No; clover roots have no binding influence on the soil; the spreading surface roots of a close sod, in which white clover is plentiful, tend to prevent washing; such land should be laid down with grass instead of clover, and when plowed the furrows should run diagonally up and down the hill.

Fits, or Megrims.—"E. D.," Tom's River, N. J., has a pony, which is sometimes taken with fits, or blind-staggers (?), and asks what he should do for a cure. There is no remedy that can be depended on, if the disease is what is often called megrims, and causes the horse to fall in convulsions or insensibility. If merely a temporary giddiness, it may be relieved by avoiding rapid or heavy work requiring great exertion, and administering tonics, with the best of food, but not stimulating, and securing perfect ventilation of the stable. If the disease is the more serious one, it is not safe to use the horse, and very wrong to sell him, as one fit is only a precursor of others, which will follow until death occurs suddenly in one of them.

Fowls eating Feathers.—"Subscriber" asks if there is any remedy for fowls eating each other's feathers, when they have abundance of fresh meat fed to them. We know of none but the effectual one of "Off with her head."

Saltpeter for Cows.—"Subscriber," McKeysport, has been told that a handful of saltpeter, given twice a week to cows, will prevent the milk turning sour rapidly in hot weather, and asks, "How is it?"—We think it would be a somewhat questionable and dangerous remedy. Saltpeter is poisonous in large quantities; half an ounce has been known to kill a man, and a handful given to a cow, unless for some good reason, as medicine, would or might be hurtful. As it operates on the kidneys, it would probably reduce the flow of milk. With perfect cleanliness, and cooling the milk before starting, it ought to be carried 100 miles without souring.

To Seed down Wet Land.—"E. A. B." asks how he shall get a piece of wet land into grass. We have succeeded in getting a good stand of red-top on such land by burning the stubble of the coarse growth in spring, harrowing, and sowing red-top thickly, or about a bushel and a half per acre, with a few quarts of timothy intermixed. Red-top will finally crowd out all the rest.

$1, or $2, or $3.—One dollar will pay for the *American Agriculturist* from May 1, to the end of 1872. Two dollars will pay for the weekly *Hearth and Home* from April 20 to the end of 1873 (including all of Edward Eggleston's great Story, "The End of the World"). Three dollars will pay for *Hearth and Home* and *American Agriculturist* for the same time.

Earth-Closets.

While farmers enjoy especial advantages for the preservation of their own health and that of their families, it is nevertheless true that in one very important essential they are careless and inattentive. We allude to the necessary appendage to a household, the closet; with which is generally connected a cesspool. This cesspool receives, for a number of years, the aggregate waste of a family, which is absorbed by the ground and soon saturates all the soil contiguous to it. The well often receives the drainage which finds its way through the soil, and the water, becoming contaminated, conveys, as it is consumed by the family, the deadliest poison. This peculiar poisonous matter, in quantities so small as to be undetected by taste or smell, produces dysentery, cholera, and typhoid fevers. Here exists an alarming danger to which a great proportion of unsuspecting country residents are subjected. The earth-closet system at once does away with this unpleasant and serious evil. Dry earth is an absorbent and a disinfectant, and it needs only to become generally known, and that there be a satisfactory means of applying it, to have it introduced into use in every country household. The Goux Earth-Closet is one of the simplest and most convenient of several modes of using dry earth. The tub or vessel used is not contaminated, being lined with a thick layer of earth, which is made compact by being compressed or beaten in around a mold. This lining forms a receptacle which receives or absorbs all solid or liquid matter, and a scoopful of dry earth, thrown in, completes the method. When the tub is filled it may be removed and emptied upon a heap, under cover, where it may be preserved in a perfectly inodorous condition until needed as a fertilizer. In this shape it will be found equal to guano, and spread on meadows or on fodder and other crops, it will represent a considerable money value, which now is utterly wasted, and worse than wasted, rendered injurious. In place of dry earth, sifted coal-ashes may be used.

Read the Story.

On page 196, the Publishers give the first chapters of a Remarkable Story, by EDWARD EGGLESTON, author of the "Hoosier School-Master." It is entitled a "Love Story," but it will be found to differ very widely from the sensational novels or love stories that fill up flash newspapers, and form the staple of "yellow-covered literature." It illustrates life in the West thirty years ago, and though following a historical chain of occurrences in the eventful lives of a group of persons, which will render the story attractive, there is a constant dropping in of the philosophy of human actions, so to speak, which is full of instruction and food for thought. The author has a wonderful power of observation, and delineates character and conduct with a master-hand. Having read many chapters of the story in advance, we can assure all who follow it that they will enjoy a rich repast, affording great pleasure and profit. It will doubtless have a success unsurpassed by any American story that has ever yet been written.

The small portion given in this paper hardly takes the reader into the merits of the narrative, but will suffice to give some idea of the style and character of the whole. Its earlier chapters read like a Western Idyl; but Mr. Eggleston soon gets us into the grotesque scenes which he draws so strongly, and Gottlieb Wehle, the Backwoods Philosopher, the Millerite Preacher, the Steam Doctor, Cynthy Ann, the "Hawk," and, above all, Jonas Harrison, one of the most effective Western characters ever drawn, make a rare gallery of original portraits. The speeches of Gottlieb Wehle, Jonas, Cynthy Ann, and the Philosopher, the Night Adventure of August, the Mob Scene, the life-like description of gambling in the saloon of a Mississippi steamboat, are drawn most vividly.

*** The weekly numbers of HEARTH AND HOME are supplied by all News-dealers. Single copies are mailed, post-paid, from this office, for 10 cents each.

XTRA.

*** The subscription to *Hearth and Home* is only $3 for a whole year, but when specially desired, subscriptions will be received from the beginning of this Story (April 20th) to the end of this year (over 8 months) for Two Dollars.

XXTRA.

*** *Hearth and Home* and *American Agriculturist* are sent together for $4 a year; or $3 will pay for *both* from April 20th to the end of 1872.

N. B.—In making up Premium Clubs, referred to elsewhere (pages 165 and 168), *Three* subscribers for either paper, or both, from April 20th to the end of 1872, may be counted as *Two* full-year subscriptions in Premium Clubs.

Percheron Horses.—H. E. Fisk, New York, asks the price of a pair of Percheron horses, or the cost of importing a pair. The Percheron horses are very scarce since the late war in France, and would probably be difficult to procure. Imported horses are held at high prices on their arrival here on account of the risk incurred on the voyage. Clydesdale horses possess every good quality of the Percherons, and probably more. One might cost $2,000 to import. Some were lately sold in England for work-horses (geldings) at $1,500 per head.

Winter in the North-West.

On April 10th we received by mail a cluster of peach-blossoms, plucked on March 18th, at Olympia, Washington Territory. Coming at a date when our own peach-trees were still enjoying their winter's rest, it occurred to us to say a word about the climate of the North-west, when most opportunely a friend handed us a slip from the Philadelphia Inquirer, in which the required data were already collated, and of which we here present the substance. There is a general impression that Oregon, Washington Territory, and Montana must be very cold, as they are so far north, forgetting that isothermal lines (lines of the same temperature) do not correspond with parallels of latitude. A comparison of the monthly mean temperatures as well as the mean of four months will show this in a striking manner. Most of the figures in the following table are furnished by the United States Signal Office at Washington, and represent three daily quotations of the thermometer at each place—morning, noon, and evening:

	Dec.'71.	Jan.'72.	Feb.'72.	Mar.'72.	Mean.
Louisville, Ky...	35°	33°	35°	35°	34
St. Louis, Mo....	31	28	32	36	31¾
Chicago.....	23	27	26	29	26
Baltimore.....	30	35	36	33	33¼
Philadelphia.....	30	29	32	29	30
Washington.....	33	33	34	33	33
New York.....	30	30	30	29	29¾
Helena, Montana	18	26	36	42	30
Kalama, W. T...	31	32	44	—	36

The temperature at Helena, Montana, may properly be taken as a fair average for the territory. It is on the general route of the Northern Pacific Railroad, directly in the mountains, and but a few hundred feet below the highest point on the line. Notwithstanding the past winter has been the coldest ever known in Montana, it will be observed that the average temperature at Helena (latitude 46½°) for the four months was the same as that of Philadelphia, although the latter city is 4,200 feet lower and 450 miles further south. Similar comparisons may be made with Chicago and other cities.

The average winter temperature at Kalama, Washington Territory, on the finished portion of the Northern Pacific road (in latitude 46°), was several degrees warmer than at Louisville or Baltimore, in latitude 39°. The greatest cold of the past winter at Kalama was 14° above zero.

Letters from members of the Montana territorial government, dated March 6th, state that for three weeks previous to that time (beginning about the middle of February) the weather had been so mild that all signs of winter had disappeared; farmers had put in their spring grain crops, and new grass was three inches high.

As we write near New York, April 10th, we can see the first plow afield that we have observed this spring, though of course the past has been an exceptional season.

The question of the climate of the North-west is now an important one, as a railroad through Montana and Washington Territories will open a vast region to settlers, who, as well as the projectors of the road, are interested in knowing what obstacles the climate may present.

What is a "Jointer" Plow?—"M. F. C.," of Somerset Co., N. J., asks what is the jointer plow mentioned by 'Walks and Talks'?" It is simply an ordinary plow with another small point and mold-board attached to the beam in the place or just in front of the coulter. It cuts a small furrow an inch or so deep, and two or three inches wide, and turns it to the bottom of the previous furrow, where it is covered by the regular furrow slice. It is sometimes called the Michigan double-plow or Michigan subsoil plow. The word "jointer" refers to the small plow on the beam. This plow was first brought to general notice at the New York State Trial of Plows in 1850, and has been very extensively used ever since. It is a favorite plow with all that class of farmers whose great object is to check the growth of weeds rather than to kill them.

Drain-Tile or Stone?—"C. C. W." asks whether he should sell stone at 60 cents a perch, with only a few hundred yards to haul them, and buy tile, or use the stone in drains, and whether it would pay, after covering the tile with some earth, to put in six inches of small stone on top of it?—We would sell the stone and buy tile. The small stone would be quite useless where C. C. W. proposes to put it.

AMERICAN AGRICULTURIST.

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and that, too, for rainy days, evenings, odd spells, or for a constant occupation—for MEN, WOMEN, and CHILDREN—*anywhere*, and *everywhere*....Over **14,000 Persons** have found it so; and here is how it is: The Publishers offer **107** Premiums, every one of them a *first-rate article*—just as good as so much *money*—for use or for sale. (See list on page 165, and send for a free, full description, if not having one.) Now, to get one of these articles *without money*, it is only necessary to solicit and forward a few subscribers for the *American Agriculturist* or HEARTH AND HOME, or for both of them. The number required is given against each premium. **It is easily done.** Show a copy of the papers, explain their value and cheapness—the cost being only a few cents a week. Few Post-Offices have around them less than twenty-five families, and many have hundreds, that would be profited in *mind* and *pocket* by reading one or both of these journals. They only need to have this shown to them. Any enterprising person, old or young, can do this just as easily as it has been done by the 14,000 who have already secured the premiums. Human nature and human wants are similar everywhere. Read page 165. These premium offers will remain open two months yet (to June 30), and May and June are good months for getting them. Partly filled premium lists can be completed, and new ones be begun and completed. A subscriber a day will get a large premium. Many can get several each day or week. Begin to-day. **Any one** taking hold with a will, determined to succeed, *will* succeed. The Premiums are open to all.

Value of Manure from different Animals.

A discussion was recently had at Lodi, Wis., on the relative value of the different kinds of manure. "The debate drifted on to the value of different *animals* to produce the best manure, consuming the same kind of food, and not being able to agree, it was decided to submit the matter to the *American Agriculturist*. Of course, you will understand that the question is whether with horse, ox, cow, sheep, or any other animal, consuming the same food, the quantity and quality of the manure will be the same." There is considerable difference in *the bulk* of manure made from different animals, as well as in the amount of water which it contains. But the intrinsic value of the manure made from a *given quantity of food* is practically the same, whether the food is consumed by a horse, ox, cow, or sheep. We say practically, because there are certain hypothetical cases in which there might be a difference in the value of the manure, but it is in all cases so slight that it is useless to discuss them. The manure from an animal that *lost weight* during the consumption of a given amount of food would contain a little more plant-food, and consequently be a little more valuable than from an animal, eating the same amount of food, that gained in weight. The flesh, wool, hair, feathers, hide, horn, and bone produced, take something from the manure. He is a very unwise farmer, however, that starves his animals for the sake of making his manure a trifle richer in nitrogen. It is generally said that a horse doing hard work will not make as rich manure as a horse lying idle. But if both have the same amount of food, the idle horse, if he gains in weight, would be *less* valuable than the working horse, that gained nothing or lost weight. But these are merely theoretical refinements

that a practical farmer, whose object is to make good manure, need not take into consideration. His only question need be, *What food* contains the greatest amount of valuable fertilizing elements? The animal has, practically, no more to do with making rich or poor manure, than a stove has to do with making rich or poor ashes. It depends entirely on the food.

Bee Notes for May. —*By M. Quinby.*

Surplus honey is the first consideration in bee-keeping. All boxes intended for use, should be ready now. One hive in a hundred may store surplus, in a good season, during apple-blossoms. It is not always economy to put on the boxes at this time, because Dandelions blossom now, and the abundant pollen that the bees get from them, will stain the combs yellow, and give an unpleasant flavor to the honey. Notwithstanding a yellow color is preferred for cheese and butter, the honey for market, to be nice, must be purely white. Manage to have the bees use all this honey to rear their brood, and get a strong force ready for clover-time.

Those who expect to increase their colonies this season should, if they have not already done so, prepare their empty hives at once. I am greatly in favor of Averill paint for hives; some light tint is preferable to the clear dazzling white. Hives of two or three colors, alternated with each other, seem to assist the bees to distinguish their own from their neighbors' hive. I do not assert that this is better than oil-paint, I only say it seems better, as there is no smell of the oil which appears to be offensive to the bees. When new swarms are hived in oil-painted hives, a greater percentage desert and go to the woods than in those unpainted.

Establish this rule at the beginning of the season, that is, to allow no bees to cluster outside for want of room inside. Extreme hot weather should be the only excuse hereafter for idle bees outside. Any one expecting the best results from his farm, garden, orchard, dairy, or apiary, without effort or knowledge on his part, will be likely to reap a short crop, and soon prefer some other pursuit. To know how to obtain the best results from a hive of bees, one must either learn by experiment himself, or adopt the experience of others. It seems now to be pretty well understood that the best results can not be obtained with the old box-hive. Another year's experience proves that transferring from box to movable-comb hives—of the right kind, of course—pays for all trouble. For directions see Bee Notes for May, 1871. After transferring, the hive is in condition to be controlled. Being able to reject all drone combs, and thereby preventing a useless horde of consumers, is of itself sufficient to remunerate all trouble. Eggs laid in drone cells, hatch out drones; the same eggs, if laid in worker cells, produce workers. Swarming is not always—may I not say, seldom?—satisfactory in box hives, when the bees manage it themselves. The bees have been brought up in ignorance of what we can do for them, for the very good reason that we did not know ourselves, and they suppose that it is necessary to provide a successor for the mother to the hive, before taking the old one away. As a rule, natural swarming does not take place short of a week or ten days' preparation. Quite often, at the commencement, there are abundant bees to spare a swarm—bees live but a short time, and often die as fast as they hatch out, when the hive is full—but at the time they get ready, they have not increased, have been idle during the preparation, and a whole swarm has lost several days right in harvest-time. Could a swarm have been taken out as soon as there were bees enough, and put into empty combs, ample winter stores would have been secured. Suppose that, just at this time, when they have prepared to leave, a change in the atmosphere prevents the secretion of honey in the flowers, and your swarm has an empty hive to fill, and no means to do it with. Have no combs in which to rear brood; the old bees are dying every day, and it is possible, before the next yield of honey, there are too few bees left to accomplish much. This can be avoided, if you understand it. When you have decided to take this matter into your own hands, you should become familiar with the appearance of the hive that has bees to spare a swarm. The next thing is to know when the flowers are secreting honey in abundance. When bees and honey are right, then is the time to make the swarm, regardless of any preparation of theirs. Every day that a colony is without a laying queen, in summer-time, reduces the profit of keeping it. The old queen goes, or ought to go, with the first swarm, whether natural, or artificially made. In natural swarms, they usually leave sealed cells with young queens, to supply her place in the old hive. It would be profitable to have a queen, fully mature, artificially reared, to supply her place, whether cells are left or not. At the end of a week the hive should be opened, and all queen-cells removed, when the laying queen may be safely introduced. If no mature queen is on hand, the next best thing is a finished cell, ready to hatch, to introduce the next day. If no such cell is to be had, leave one, and but one, of the first made by the old hive. You will, of course, see that there are drones in some of the hives, at such times.

As long as good colonies, in the box-hives, can be purchased under ten dollars, it is doubtful if economy would dictate making artificial swarms, or having others. I would like to have you feel indifferent about it. I would suggest that you provide an empty hive for each old stock, in case they were disposed to swarm; but otherwise do just as if all the bees that hatched in a hive were going to stay home the whole season and wanted room for stores. Give room inside the hive for surplus boxes that will hold from 150 to 200 pounds. The chances are, that such hive will make no preparation for swarming. If they do not, the *extra* amount of surplus that they will store, will purchase two or three stocks for winter. Should they swarm, you will have the new stock and some surplus, and no anxiety in the matter. Give room inside, and have the boxes in close proximity to the body of the hive, and all will be likely to go well. Before there are many bees in the way, early in the month, open the hive, find the queen, and clip one wing; the swarm will not go off in such case, if they issue.

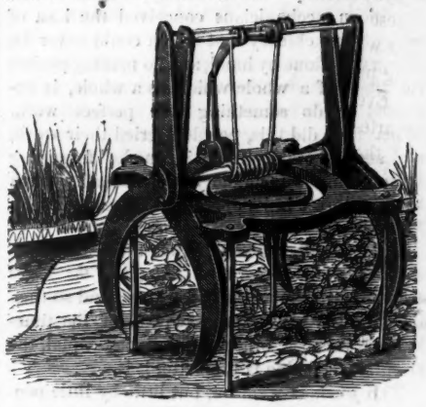
The hive may be so arranged that the room for surplus boxes can be occupied with frames; and as soon as combs, ready made, can be furnished, and the honey extracted, the quantity that we are now getting may be trebled. Any one having lost a hive of bees this winter, will find a great advantage in saving all the combs, unless drone-cells, or diseased; put them in frames, as in transferring. These are what we want when we come to extracting our honey, instead of compelling the bees to lose time constructing combs. I will make an estimate of the cost of comb, in honey, describe an extractor, and give instructions in rearing queens, etc., soon.

Holstein or Dutch Cattle.

Holland has long been famed for its dairy products and its milch cows. About twenty years ago a Dutch cow was imported into the United States, and her excellent qualities led to further importations, until the stock has become somewhat distributed, and has achieved a good reputation as heavy milkers and large beef-cattle. The cattle which are the subject of the illustration on our first page, are the property of Mr. J. T. Ellis, Flemington, N. J. Prof. Geo. H. Cook, Geologist of the State of New Jersey, in a recent visit to Europe was much interested in the Dutch cattle, and favorably impressed with their excellence as producers of both milk and beef. Prof. C. has examined the animals from which our engraving is taken, and pronounces them very good specimens of the breed. It will be seen that their milking qualities are largely developed, and that their general character stamps them as eminently a dairy stock. A cow of this breed has yielded 35½ quarts of milk per day, from which nearly 3 pounds of butter have been made. Heifers of two years old have reached a weight of 1,200 pounds. It is not uncommon for bulls to attain a weight of 2,400 pounds, and working oxen of 4,500 pounds the pair. They are large feeders, and need the best pasture and care to bring about these results.

Moles and Mole-Traps.

Moles are a nuisance. Whatever use they may perform in the economy of nature, in gardens and meadows they must be got rid of. The traps so far in use, are not efficient. They fail in many ways. What is wanted, is a trap which will not deter the mole from entering it, and which, as soon as the mole goes in, suddenly and unfailingly destroys it. The trap figured on this page seems well adapted to these joint purposes. It is set as follows: The earth over the run is pressed down with the foot, which closes the passage. The trap, set as in the cut, is forced down into the soft earth, until the pan (*a*) is in such a position that the mole, in repairing its burrow, which it will be sure to do, presses it upwards as it passes beneath it, and



THE MERRIMAN RAT AND MOLE TRAP.

springs the trap. The jaws (*b*, *b*) close with force enough to instantly kill the mole.

We have tried this trap for catching rats, and have found it to be very efficient.

How they make Watches at Marion.

BY GEORGE CARY EGGLESTON.

Pocket time-pieces were first used about the year 1600. They were then known as Nuremberg animated eggs, a rather long and clumsy designation, that soon gave place to the name watch, from the old division of the solar day into equal parts known as watches. They were made, for about two centuries, wholly by hand, each workman manufacturing the entire watch.

As a matter of course, they were of clumsy construction so far as the running apparatus was concerned, and exceedingly inaccurate as time-keepers, and for a considerable period the inventive faculty of watch-makers was directed wholly to the production of queer casings, or the devising of ingenious attachments, which impaired the value of the watches, and served only to make them curious and costly toys, of hardly any real use. They were encased in all sorts of things. Some were placed in heavy gold crosses, to be suspended from the neck. Others were made in the form of skulls and cross-bones, and watches appeared in all sorts of fantastic shapes. Their dials peeped out of snuff-boxes, bracelets, shirt-buttons, and finger-rings, and some were even set in saddle-pommels. There were some of them as large as the crown of a hat, while others were so small as to fit in the end of a pencil-case. One of these is still preserved in Switzerland, the diameter of which is but three sixteenths of an inch, and yet it marked on its little dial the day of the month, the hour, the minute, and the second.

But, large or small, plain or curiously wrought, the watches of the olden time all failed in the one only excellence a watch can have—accurate time-keeping. There is nothing better calculated, however, to make people wish for a perfect thing than the possession of a very imperfect one; and so after a while there began to be a demand for something more accurate in the way of time-pieces, and out of that demand has grown the almost perfect watches now made in America, whose manufacturers are disposed to think them defective if they vary more than a few seconds a year from absolute mean time.

To trace the history of the improvements made would be pleasant enough, but the limits of an article are altogether too narrow for

such an attempt, and after all the real era from which the world must hereafter date the history of satisfactory watch-making, began when American mechanicians conceived the idea of doing by machinery that which could never be adequately done by hand, and so making perfect the parts of a whole which, as a whole, is expected to do something like perfect work. When they did this, people decried their work, and sneered at it as "machine-made," forgetting that automatic machinery is of necessity much more accurate in its operations than any human hand can possibly be.

Then, again, it was said that these manufacturers had discarded *three fourths of the pieces* belonging to the works of a watch; and so they had, to the great improvement of the time-keeper, because, other things being equal, the simpler a machine is the better it is.

The jeerings went on, but little by little people learned two facts: first, that these machine-made watches kept better time than any others; and secondly, that they would last longer than any other time-pieces ever made, and when these two points were once fully established, the watches made in this country took the leading place that they hold to-day.

Ever since the first of these factories was started, there has been a steady improvement of the product, and now, under sharp competition, each of the great establishments is constantly adding to its machinery new devices for bringing the delicate wheels, and cogs, and pinions, and screws, and springs nearer and nearer to a mathematical perfection of form, for the one purpose of making their watches more and more nearly perfect in their marking of the time.

It was but a few years ago that half a dozen gentlemen got off a train of cars in the Jersey meadows a few miles out from New York. The place was bald and dreary enough then, but the visit of these gentlemen was the forerunner of a great industry that has grown up there. They went there to select a site for the United States Watch Company's works, and now they have quite a goodly little town around their great towering factory, wherein hundreds of happy, industrious men and women sit every day, each attending a quiet little automatic machine, that does its appointed work with the utmost precision, and helps to swell the daily shipment of nearly perfect Marion watches.

I saw these people and their machinery at work the other day, and truly wonderful work they do too.

In one room there are great punches, each cutting the rough metal into bits of convenient shape, or stamping the bits into a proper degree of density and hardness. Each punch has its own work to do, and nothing else, and each man confines his attention to his own machine. Here, as everywhere in the factory, the intelligence employed lies largely in the machinery, its attendants having nothing to do but to supply it with its proper material. In other rooms, hundreds of girls sit in long rows, each attending a machine which does its work silently, turning out screws, cutting screw-heads, cutting teeth in wheels, punching holes, or doing whatever else its function is, with untiring industry and unerring precision. There are, in all, one hundred and seventy-six pieces, large and small, in every watch made at this factory, and each watch is the workmanship of one hundred and forty-one persons, and one hundred and fifty-two separate and distinct machines.

To catalogue all these machines, many of which were invented in this factory and can be used nowhere else, and to tell their several uses, would of itself require more space than I can occupy with this article. I can only speak now of some of the curious parts of the great subdivided industry.

One girl sits in a corner running a little piece of mechanism that whittles steel wire up into shavings. Of what use are these little shavings, so small that they stick together in the box? My guide answers a question to this effect by putting a powerful magnifying glass into my hand, and asking me to examine them through that. I then discover that they are not shavings at all, but screws—perfect screws, all precisely of a size, and all precisely alike, with a fixed number of threads on each. These are used to fasten the jewels into their proper places. And so we went next to the girls who were cutting the jewels up into proper sizes and shapes. The jewels used are rubies, garnets, and sapphires. They are sawed first into thin slices, by means of circular bits of tin charged with diamond powder. Then these slices are cemented together and sawed transversely. This finishes the work of getting them out in the rough. The tiny bits are then cemented to a metallic disc and ground to an even thickness, the accuracy of which is tested by means of an instrument having a long indicating needle, which marks the thousandth part of an inch. As the stone is placed at the inner end of the needle, the minutest conceivable variation from its proper thickness will be shown, exaggeratedly of course, by the tell-tale point.

When exactitude of thickness is secured, the stones are cut to proper angles for their several uses, and the accuracy of these is tested by another indicator. A somewhat similar contrivance, too, is used to determine the exact thickness of the hair-springs, but with even greater attention to minute accuracy, the needle marking variations of $^1/_{10,000}$ part of an inch.

Every part of the watch, large or small, is made in the same way. Nothing is left to judgment, eye, or hand. Every shape is determined beforehand, and every result measured unerringly by instruments of almost marvelous delicacy. And so exactly is all this done, that the various pieces in the different watches are freely interchangeable.

When a "train," as a complete set of the working parts is called, has been finished, it goes to the regulator to be adjusted before being made into a movement. This regulator is a plate containing a perfect watch movement made to work a small hand marking a minute part of a second by each revolution, each revolution being divided into four separate motions. The newly-made train is placed in position by the side of this, and made to move a similar little hand. The man attending the regulator keeps the two in motion before him, adjusting the new one from time to time, until the two little hands revolve precisely together, and then he knows that all the parts are of proper size, proper shape, proper polish, and proper adjustment to make a watch that will run correctly. This much must be secured before any train is put into a movement, as the works of a watch set up, ready for the case, are called. The company wants to make correct time-keepers, and will tolerate no measurable variation from accuracy of motion.

When this is done the superintendent knows that the works are properly made, and without any further experiment he might safely sell the watch under a guarantee that it is vastly better as a time-keeper than any hand-made watch ever was or ever can be—nay, that it is very much better than any European watch yet manufactured. But *perfection* is what the Marion watches aim at, and no possible means of securing it are spared. Besides defects of construction, there are two other causes of inaccuracy to be guarded against. One of these is change of position, and the other difference of temperature. When the movement is set up, therefore, it is kept running for a considerable time in a frame which holds it at different times in a variety of positions, and the slightest variation from mean time is sufficient to call for its readjustment. When it is so perfect as to stand this test, it is placed in an oven heated to 100° Fah., where it is kept for several days, after which it is removed and packed away in ice for a like period. If it shows no variation under this severest of all tests, it is sent out for sale.

And that is how they make watches at Marion, like the one Mr. Chittenden carries, that varies but two seconds in fourteen months.

Ogden Farm Papers.—No. 28

I sometimes wish I had never said a word about "gilt-edged" butter. For, since the publication of the article describing it, I have been run down with applications for detailed information. Knowing how ungracious it must seem to a farmer who writes a careful letter earnestly seeking information not to give it, I answered these letters at some length, until I found that my time and attention were being taken from imperative duties. Since then, at the disagreeable risk of giving offense, I have had to refer correspondents to this number of the Ogden Farm Papers for a statement of the whole case. I wish to premise that I do not pretend to know the best way to make butter; that my experience in dairy matters has not been very extensive; and that I hold up my practices as an example with much misgiving as to the judgment that may be formed of them by those who have more knowledge and experience in the business. I can only say that I do the best I know, and that I have found the result in my own business reasonably satisfactory.

First, to describe the utensils required: (1.) A water-tank holding at least two feet (or better two and a half feet) of water, having a superficial area of not less than four square feet for each ten cows in the dairy. This tank should stand in a room where it will not freeze in the coldest weather. It had better be partly or entirely below the level of the ground, that it may be reasonably cool in summer, and it must be fresh and well ventilated, its bottom free from stagnant moisture, and its sides not exposed to foul exudations from adjacent sink-drains, etc. The tank should be supplied with fresh water from a well or spring by a natural or artificial stream. The larger the flow the better, but it will suffice for a dairy of 40 cows to use a half-inch stream. The fresh water should have a temperature not higher than 58°. It would of course be better that the stream should be a constant one, but it will often be necessary, as in our case, to use a windmill, and we find in practice that it is never dead calm long enough together for the water to become stagnant or too warm. (2.) A set of cans, 8 in. in diameter and 25 in. deep, such as are made by the Iron-clad Can Co. of New York City, and called "Orange County Creamery Cans." These have heavy iron bands at the bottom, which serve the double purpose of strengthening them and of so ballasting them that they float upright in the water. They have common iron bails at the top for handling (fig. 1). Each can

should have a light tin cover (fig. 2), not wired at the edge, and furnished with three studs sitting inside the can to hold it in place. In the center there should be a hole, one inch in diameter, for ventilation. With a dairy of ordinarily good cows, three cans will be required for ten cows.

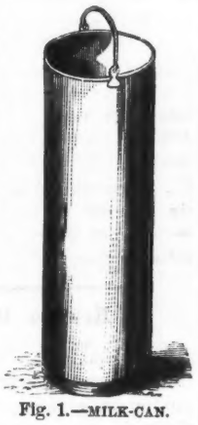


Fig. 1.—MILK-CAN.

(3.) A conical skimming dipper (fig. 3), four or five inches in diameter at the top and pointed at the bottom, the top not wired, and the handle, which rises vertically from the dipper, attached a little below the top on the inside.

(4.) Larger cans, with tightly-fitting covers, for holding the cream.

(5.) A churn of whatever form may be considered best.

(6.) A butter-worker, of which there are several good varieties, none better in my opinion than a white-oak table, sloping a little, with a groove around the edge, to convey the buttermilk to one point, whence it drips into a pail; and a two-handled white-oak paddle for manipulating the mass.

(7.) A sponge, five or six inches in diameter, of the soft coarse-grained variety sold by druggists as bathing sponges. (8.) A suitable mold for making the butter into pats. (9.) Square pieces of the cheapest and thinnest bleached muslin, large enough to inclose the pats. (10.) A Philadelphia butter-tub, figured in a previous number of the *Agriculturist*, which is a high oval tub containing a tin case, of which the ends are partitioned off for ice, and the center furnished with studs to support light wooden shelves to hold the layers of butter.

Fig. 2.—COVER.

These utensils being provided, the process is as follows: The milk is taken immediately from the stable to the milk-room (not allowed to stand and absorb the odor of the stable), and is strained into the cans, filling them to within about two inches of the top. As soon as a can is filled it is set into the tank and the cover placed upon it. It will often happen that the last can is not sufficiently filled to sink deep enough to float erect, and there should be one or more strings pendent from the ceiling to be made fast to its bail and keep it straight. At the next milking this can should not be disturbed, but the entire mess should be put into fresh cans. Just before the third milking time (after 24 hours' sitting), the first lot of cans should be carefully lifted out of the tank and skimmed with the conical dipper, the cream being put into the cream can. Just before the fourth milking time the second lot of cans should be skimmed in like manner. If necessary, toward evening of the day before churning, the cream-cans should be taken out of the water and placed in a warmer room, so that the temperature of the cream will rise to from 60° to 62°. If it is cold weather, and it is necessary to stand the cream in a room with a fire, the cans should be set on a table, as the air toward the floor, even in a heated room, is often too cold. We find it best to have two butter days a week—Tuesday and Friday. Early in the morning, the churn, which has stood uncovered and in a well-ventilated place since its last use, is thoroughly scalded, and then rinsed out with lukewarm water in winter, and cold water fresh from the well in summer. Cream is then poured in, and the churn kept in motion, without interruption, until the butter comes. When the butter has all formed, it is gathered by a slow, rocking motion of the paddles, the plug is removed, and the buttermilk withdrawn. It is sometimes, but not always, necessary to rinse down the paddles before the butter gathers. The buttermilk having run off as well as it will, the plug is returned to its place, and two or three dipperfuls of water of suitable temperature, according to the season, are thrown in, and the paddles are worked slowly back and forth for a moment, when this water is drawn off and a second supply is added in like manner. If this water is quite milky a third supply is added. This is the only washing that the butter receives. It tends to consolidate the mass, and to remove the most of the buttermilk.

The butter is then taken out, about 10 lbs. at a time, and placed upon the working table, which, as well as the paddle, has been previously scalded, and washed with cold water. The butter is then flattened out with the paddle, its surface being gashed and checked (but not cut entirely through) in both directions by its blunt edge. When it is thoroughly cut over, the paddle is laid aside, and the sponge, well wrung out of cold water, is firmly patted over the whole surface, and over so much of the table as may contain buttermilk from the working. It is then returned to its vessel of water, and with the paddle the butter is turned over, rolled together, flattened out, and again manipulated with the blunt edge, and the sponge, wrung out clean and dry, is again used. This process is repeated until the butter is thoroughly dry, no globules of water (or perspiration) being perceptible when it is manipulated with the paddle. Then the requisite quantity of salt (Onondaga Dairy salt being in our opinion the best) is sprinkled over it, and thoroughly incorporated with it by a short but rapid working. The butter is then packed in the bottom of a cream-can and covered up. Another mass is taken from the churn, similarly prepared, and packed closely upon it. The can is then set in a place neither too cold nor too warm, and allowed to remain until the next working, either from morning until toward evening, or from evening until morning. The butter is then worked again, and if necessary, though it generally is not, the sponge is used to remove any brine that may appear. Immediately after this working the butter is molded into pats, and each pat is turned from the mold with its lower side placed on the center of one of the squares of muslin, which has been freshly wrung out of clear cold water. Any inequality of the edge of the pat is smoothed over, two opposite corners of the cloth are turned over the top, and with the other two the pat is lifted into its place in the butter-box and completely covered over.

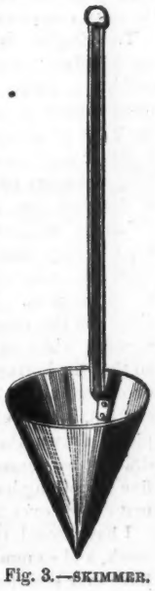


Fig. 3.—SKIMMER.

In winter-time this butter may be transported to any distance without ice, but as soon as the weather becomes warm the compartments at the ends of the box should be filled with broken ice, which will keep it cool, with proper care, for twenty-four hours. When the butter and ice are ready for market, the top should be fitted on to the box and secured in its place by the stick which passes through the handles of the tub, and fastened with a lock if to be transported by public conveyance. If carried in an open wagon, the box should be covered with a blanket to shelter it from the sun.

Concerning the quantity of salt to be used, it is impossible to give directions to suit all tastes. We use about one ounce of salt to two pounds of butter. Most markets would require one ounce of salt to one pound of butter, or even more than this.

The butter being dispatched, one of the most important labors of the dairy remains to be performed—that is, the thorough scalding, and cleansing, and sunning, and airing of every utensil that has been used in its manufacture. The sun and air are great purifiers, and will remove any tendency to taint, provided all extraneous matter has first been carefully removed, but not otherwise. After the utensils have been put out to air, the room itself should be thoroughly cleansed and ventilated, and at least once in a month the walls should be lime-washed.

The question of artificial coloring is important to be understood. Unless one has a profusion of colored roots or of early cut hay or rowan, the butter will be at some time during the winter too white to be attractive. We have tried a great variety of processes for coloring, but until recently have had great difficulty in securing perfect uniformity. Carrot-juice put in the churn is often very good, but sometimes a bitter root will escape detection, and its juices will seriously affect the flavor of the butter; the color will also vary in intensity. Annatto and annattoine, as ordinarily used, require more judgment to secure uniformity than can always be commanded. We have now been using for some time a preparation of annattoine made according to Burrell's recipe, and find it as nearly perfect as could be hoped for. The recipe is as follows: Put 1 lb. of annattoine in 2 gals. of clear spring water, and let it stand 24 hours, stirring frequently. Put 1 lb. of potash and ½ lb. sal-soda in 1½ gal. cold water. When these are all dissolved, settled, and skimmed, pour the clear liquor into the solution of annatto. Let the compound stand some days, stirring occasionally. Keep the preparation in stone jugs or in bottles in a dark place. Shake before using, and put into the churn one tablespoonful for each five quarts of cream—more or less, according to the depth of color desired. By using always the same proportion, the same shade will always be produced.

I believe that an adherence to the foregoing directions will secure as good a result as the character of the cows in the dairy is capable of. With Jersey cows or grade Jerseys, there is no doubt that a much finer quality of butter can be made than with any other breed; and in the long run, the best utensil for making "Gilt-edged Butter" will be found to be a thoroughbred Jersey bull.

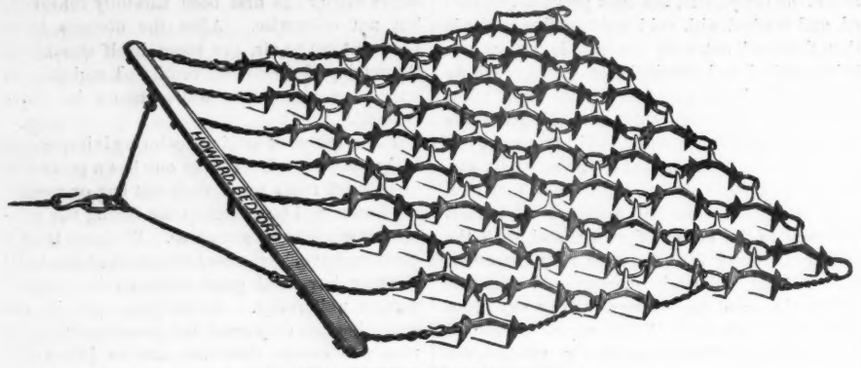
The butter being made, half the battle is fought. The other half will be to make a market for it. The secret in doing this is to make it known, by whatever means may be available, that the butter bearing your stamp is good—*and always good.* No matter about price at first, secure at the outset a good class of customers, at half-price if necessary, and make your butter a necessity to them. You will secure, as soon as you deserve it, a demand for your whole product at more than the usual market price.

About Harrows.

BY GEORGE E. WARING, JR., OGDEN FARM.

Last spring the makers of Thomas's smoothing harrow complained that the account given in "Ogden Farm Papers" of my experience with their implement had resulted to their disadvantage, and they asked me to try this year one of a new form, but working on the same principle. Another maker asked me to try a *Bussell* harrow (a cousin of the Nishwitz). A friend had sent me an English "Flexible" or chain harrow. I had already a large "Shares."

The latter, which is now well known, I consider the best harrow for rough cultivation that I have ever seen. It cuts up a newly-turned sod furrow to perfection, and gives one or two inches of perfect covering, while it tends rather to press the furrow into its place than to tear it up, as the common tooth-harrow does. I have



ENGLISH FLEXIBLE OR CHAIN-HARROW.

not had a common harrow on the place for two years, nor do I care to have one so long as I can get a Shares.

The Bussell harrow is intended to do the same work with the foregoing—that is, the rough handling of newly-plowed land—but to do it in a very different way. The frame is A-shaped, like the Shares, and it has the everlasting spring seat on it by which manufacturers hope to catch the fancy of the lazier class of farmers. (I shall not be surprised to see some day a churn with a spring-seat for the man who is to turn the crank.) The frame is supported on about a dozen wheels set along its edge, wheels with sharp edges and very much dished, and about 14 inches in diameter. They are set at an angle with the line of march, so as to cut into the ground and throw the dirt (a little outward) as fine as sawdust. I gave this machine a fair trial, and found its wheels not suited to my heavy soil, its draught not suited to my very heavy mule team, and its seat not suited to my heavy style of riding. In short, I did not like it, either as an agricultural implement or as a pleasure vehicle. I have, however, good accounts of it in some other quarters. I return to my Shares harrow, quite content.

Thomas's smoother is mainly for finishing work. It has been very much improved from its original form, being now made in three sections, each about three feet square, hinged together in such a way as to cover a width of nine feet, and hung to run with one end a little further back than the other, so that the teeth shall not "track" with each other. The teeth are made of ⅝ steel rods, and are a little inclined to the rear, so that their action is smoothing rather than scratching, something after the manner of a bush. When properly regulated, the tracks of the teeth are about one inch apart, and the ground is very finely pulverized and leveled. By repeated use, it may be made to do the work of both roller and bush; and I have found it, for all work for which it is adapted, as nearly perfect as any implement can be. But it is *not* adapted for the cultivation of corn on Ogden Farm. I gave it a fair trial, with the row and across the row, and it tore up or covered up too much of the crop for my taste. On light soils it may answer—I can not tell without trying—but on my soil it will never do until I can get control of sun and rain, and keep the ground light and mellow from planting time until the corn is up, and I very much doubt whether it would do even then. It is, however, to my mind, no argument against a plow that you can't mow grass with it. I am entirely satisfied with the Thomas harrow, *as a harrow;* for hoeing corn I must still recommend "the good old way." If I could have only one, I would dispense with the Shares rather than with the Thomas. Both together make the most complete work.

The English flexible harrow (fig. 1) is quite an old affair—so old that the patent has run out, making it public property—which our implement-makers would do well to adopt. The teeth are of chilled iron, and they are fastened together with steel links. It is perfectly flexible, and every tooth is bound to descend until it touches the ground. This makes it the "s'archin'est" harrow that can be found. The top of every hummock and the bottom of every dead furrow is sure to receive its due share of the scratching. The teeth are longer on one side than the other, and at one edge they are vertical, while at the other they are oblique, so that the harrow may be used either side up or either end first. Drawn as it is shown in the cut, it is an effective harrow to follow the plow; drawn the other side up, and with the draught-bar hooked to the opposite end, it is a fine smoothing-harrow, almost equal to a chain-mat drawn over the ground.

I have found this a good implement for all work, and so much better than anything else I have ever seen for fining manure that has been spread from a cart, or for beating up the manure on a pasture (loosening up the grass at the same time), that I believe its use will add at least ten per cent to the effect of manure, spread and beaten in the ordinary way, simply by causing a more even distribution of the fertilizing matter over the whole surface.

JERSEYS IN NOVA SCOTIA.—The testimony of our Mobile correspondent is no more favorable to this breed for the far South than is that of Mr. Chas. C. Brown, of Yarmouth, Nova Scotia, for the far North. He says: "My ¾ Alderney gave Nov. 21st 23 lbs. 7 oz. milk, dropped calf March 26th, and will come in again March 10th; gives now (Jan. 5th) 10 to 13 lbs. in the morning, fed on good hay (cut in June), with half a bushel of turnips per day, and is good beef notwithstanding the usual gauntness of the breed. We think our climate especially adapted to the Alderney. When I had but one cow and a family of eleven, with five children, using milk freely, and cream always three times daily, we made as high as 7 lbs. butter from one week's milk. This season, with a second cow (¾ Alderney), a daughter of the first, but with six children, we made up to 23¾ lbs. Surely we are not wrong when we think this breed suits our country."

How to Dress a Sheep.

The "woolly taste" in mutton is not derived from the wool. The peculiar flavor of ill-dressed mutton has nothing to do with the coat of the sheep, but arises from the absorption by the meat of the gases from the intestines, which, as the outside of the carcass cools, can not escape, and are therefore absorbed by the flesh. There is a simple remedy. As soon as the animal is dead, let the hide be slit up from the brisket to the tail, and to the knees, by a quick motion of a sharp-pointed knife, inserted beneath the skin. Strip the skin from the belly and the ribs and legs, so that it will be out of the way of the intestines. Then open the sheep immediately, and disembowel it. All this ought to be the work of about one minute or two, or if it occupies five, there will not be sufficient time for the carcass to cool sufficiently to cause any unpleasant taste. Then proceed to strip the skin from the back of the carcass. A sheep should be killed by thrusting a sharp knife through the neck, back of the windpipe, without touching it however, but cutting the arteries; and as soon as the knife is inserted,

DRESSING A SHEEP.

it should be twisted around as if to make a round hole; there will then be no mistake made in cutting the arteries, and the death of the animal will be comparatively painless and rapid. As mutton should be made the chief meat diet of a farmer during the summer, it is well that every one should know how to slaughter and dress a sheep in the best manner. Among other trades, a farmer ought to be a fair if not a good butcher. He will not then complain of woolly mutton.

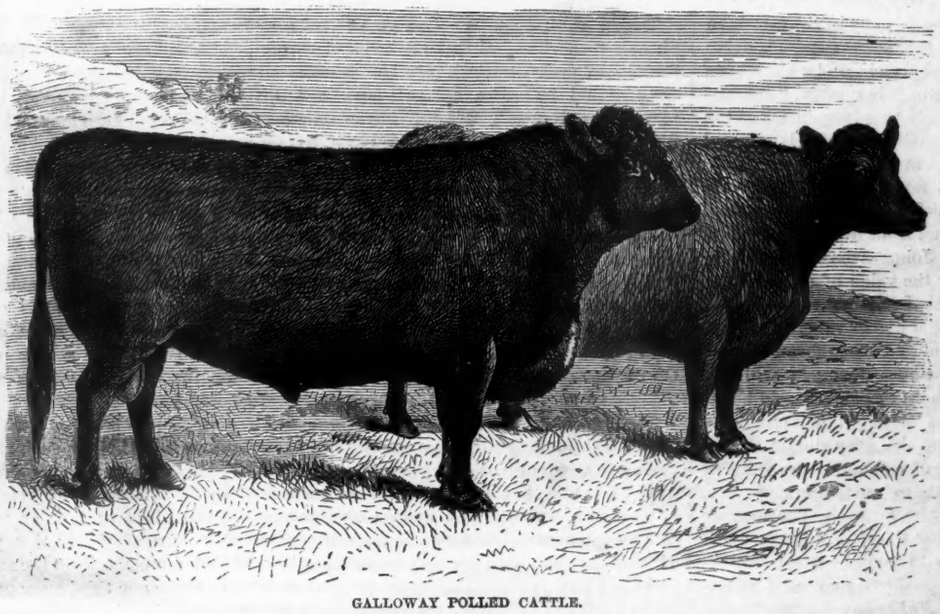
The Abyssinian Wart-Hog.

Those who saw Barnum's Menagerie after the additions were made to it last autumn, will recognize in the engraving here given portraits of two of the most interesting ugly beasts in the collection—the Wart-hogs of Abyssinia. These animals belong to the genus *Phacochœrus*, and though in the same family with our domesticated swine, differ from them sufficiently to be placed in a separate genus. The Wart-hogs have the same general appearance as the domesticated ones, but differ in the number and arrangement of their teeth. They have a very heavy look, and their uncouth appearance is enhanced by the small size of their eyes and their very large ears. A marked characteristic, and one which gives them their common name—the scientific name being the same thing turned into Greek—is a warty appendage or tubercle attached below each eye. There are some four species known, all natives of Africa, and all having these peculiar appendages upon each side of the head. The species here figured has remarkably long bristles along the upper part of the neck and back, which serve to increase the wild aspect of the animal. In their native state the Wart-hogs are exceedingly ferocious, and we do not know of any attempts at domesticating them. It may be that if placed where their wants were provided for, they would, like the wild hog of Europe, lose their intractability and become useful. When we compare the hogs of the wilder parts of the South and West, where they are known as "sub-soilers," "ridge-backs," "jumping alligators," and "land-pikes," with a high-bred Yorkshire or Essex, the difference is very wide. Perhaps this wild hog of Africa is not so far below the "land-pike" as that is beneath the best specimens of our best breeders. We do not know that these African animals possess any desirable qualities that should lead to their domestication, but this case is no more unpromising than was that of the originals of our valued breeds. It can not be supposed that all the animals likely to be useful to man have yet been brought under domestication. We hope to see some day in this country a Society of Acclimation, which shall test under domestication all animals that promise usefulness, whether for their flesh or their coverings. Such a society existed in Paris, but the animals were eaten during the siege.

ABYSSINIAN WART-HOGS.

Polled Cattle.

Not long since, a Western "stock journal" stated that there was no established breed of hornless cattle. Hornless or polled cows and oxen are not at all uncommon in some of the Western States, more especially in Illinois and Missouri, but still, in the United States, it is true we have no stock-breeders who make a specialty of this species. In Western Canada there is at least one breeder who possesses a herd of pure-bred Galloways, of which race the cattle figured in the engraving is a true representation. Galloway is a district on the west coast of Scotland, which owing to the influence of the sea-breezes possesses a moist, warm climate, so much so that figs are sometimes ripened in sheltered gardens when trained on walls having a south aspect. The soil, however, is poor, and the surface mainly composed of granite rocks, with peat bogs in the intervales. On the stunted but nutritious pastures afforded by such a country, a race of hardy cattle have been bred for centuries without any admixture from other races. They have, therefore, as may be expected from all these conditions, and from the fact that they have been bred for the especial purpose of supplying the English cities with beef, become a breed of active, hardy, comparatively small, but exceedingly vigorous cattle, of but little account for the dairy, but carrying on their fine frame a proportionately large amount of good, well-flavored meat. The vigor of the race is understood when it is known that a Galloway bull will perpetuate his qualities and marks thoroughly on the produce of even a pure Shorthorn cow. This peculiarity gives him an especial value to those breeders who desire to cross their stock with Galloway blood. The usual method of raising the young cattle in Galloway is to let them suck the cows; or if the cows are milked it is only at such times as when the calf has possession of one side of the cow and the milkmaid the other. Under these circumstances, it can not be expected that the breed is fitted for the dairy. But for certain districts in the United States they would be found valuable, as they have all the hardiness of the Texan, with strength and activity sufficient to enable them to travel hundreds of miles in droves without falling off in condition. It has been customary for the Galloway cattle to be driven in large herds to the London market, a distance of five hundred miles, stopping nights to get a feed on pastures kept specially for them. Very often droves of lean stock have been retained on some of the rich meadows of the midland counties of England to be fattened. The breed has thus become crossed on the native stocks of Norfolk and Leicester, and in consequence a race of polled cattle has become established in those counties. But there the stock is generally of a red color, and more fitted for dairy purposes. An attempt is being made to import these Norfolk polled cattle into this country, and we think that it is a design worthy of being thoroughly carried out.



GALLOWAY POLLED CATTLE.

Horns are frightful weapons amongst a drove of half-wild irritated and alarmed cattle, and so far as our beef stock is concerned may be very profitably dispensed with. There is no doubt but that the introduction of these hornless breeds, with all the other advantages they possess, would be of benefit to our Western and much of our Eastern country. They arrive at an early maturity, at three years old will make 600 to 800 pounds of beef, which is well flavored, tender, and with fat and lean well mixed together, and, in short, are a favorite breed with the feeder, drover, butcher, and consumer.

Walks and Talks on the Farm.—No. 101.

I have been reading Miss Howard's translation of Prof. Viele's lectures on chemical manures. His fundamental idea is that by the use of nitrogen, phosphates, and potash we can dispense with ordinary barn-yard manure. Within certain limits this is undoubtedly true. But it was Lawes and Gilbert, and not Prof. Viele, that proved the fact. The lectures are a strange compound of truth and error. That which is true is not new, and that which is new is not true—or at any rate, as the Scotch say, "not proven."

These lectures, as translated by Miss Howard of Georgia, and published in pamphlet form, are having a considerable circulation in the Southern States. And, notwithstanding their innumerable errors and doubtful statements, they are well calculated to attract attention to the advantages of using artificial fertilizers, and thus do much good.

Throughout the whole length and breadth of the large area known as the Atlantic slope, artificial manures, if of good quality and sold at a reasonable price, might be used to an enormous extent with great benefit to the individual farmers and planters and to the commercial interests of the country. If my memory serves me, as much as 145,000 tons of guano was used in a single year, and principally in the Southern States, before the war. Since then, Peruvian guano has deteriorated greatly, and what is even worse, it varies very much in quality, some cargoes being worth nearly twice as much per ton as others, while, as I understand, it is all sold by the Peruvian agent at the same price.

Our manufactured fertilizers, as a rule, are even still more unsatisfactory. A few are good, many are inferior, and some are not worth the freight. Prof. S. W. Johnson has done a noble work in determining the value of many of our commercial manures. In his last report on the subject, he has placed a higher value on the different ingredients of manure than formerly, and the manufacturers whose manures will not stand the test of such an estimate should know that there is something wrong in their processes. And there is one point that they should understand. This method of estimating the value of manures can not do the manufacturers injustice, but it may mislead the farmer. The manure can not be worth *more* than the ingredients it contains indicate; but it may be worth *less*, because some of the ingredients may be in an unavailable condition. For instance, a mixture of leather, hair, wool, and ground undissolved Charleston phosphates would not be worth half what the analysis indicates. The nitrogen and phosphoric acid are there, but in such an unavailable condition that the manure would have comparatively little effect on the crop to which it was applied. The analysis, therefore, may represent the manure as more valuable than it is; but a manure is never more valuable than the analysis indicates.

Prof. Johnson, after a very careful consideration of the whole subject, estimates the values of the ingredients of manures as follows:

Potash	7 cents per lb.
Nitrogen	30 " "
Soluble phosphoric acid	16¼ " "
Insoluble " "	6 " "

The Manhattan Manufacturing and Fertilizing Company, whose manures I have considerable faith in, send me an analysis of their Phosphatic Blood Manure, made by Prof. S. W. Johnson. It contains:

	Per cent.	Value per ton.
Water	21.40	
Soluble phosphoric acid	5.66	$18.39
Insoluble " "	8.03	9.63
Potash	1.40	1.96
Soda	2.60	
Nitrogen	3.32	19.92
Value per ton of 2,000 lbs		$49.90

In the present condition of the artificial manure market, this is not a bad showing. The manure is not as good as it should be—not as good as the ingredients used in its manufacture are capable of producing. The fact is, it is not an easy matter to decompose bone-dust, and if I were the manufacturers I should employ mineral phosphates instead. I know there is an unfounded prejudice against them, but the soluble phosphoric acid obtained from them is just as valuable as that obtained from bones.

But can we afford to use artificial manures at these prices? On poor, sandy land, and where the products can be sent to the cities on the Atlantic coast, I think we can. And even here in the interior the market-gardener, seed-grower, and nurseryman may sometimes use them with considerable profit. Even farmers in the interior, on poor, sandy land, may use them for the purpose of "getting a start," but not as a steady thing. We can do better—at least I think so—by making more manure on our own farms.

Taking Prof. Johnson's figures, the potash, phosphoric acid, and nitrogen in a ton of clover hay would make it worth $17.57 for manure. Bran would be worth $22.10; peas, $23.84; malt-dust ("combs"), $31.30; linseed oil-cake, $33.76, and decorticated cotton-seed cake, $47.56 per ton for manure.

When fed to animals, there is a loss of about five per cent of nitrogen and a very insignificant amount of potash and phosphoric acid. If we deduct five per cent from the above figures, it will be safe to assume that they represent the value of the manure made by an animal consuming a ton of the foods named, as compared with the theoretical value of artificial manures. On the same basis, a ton of ordinary barn-yard manure would be worth $3.25.

To a farmer who buys as much bran and other food to feed to sheep and pigs as I do, there must be encouragement in the above figures. I think they are too high, but it seems that artificial manures can not be obtained in this country at a cheaper rate. And *if* our Eastern and Southern friends can afford to buy these manures we certainly ought to be able to make considerable profit from feeding stock and making manure on our farms.

A Pennsylvania farmer writes: "During the winter I have been looking over old files of the *American Agriculturist*," which is certainly a very sensible thing to do. "You seem in Walks and Talks," he says, "to hold out the idea that summer-fallow and thorough cultivation will exterminate the weeds. Do you really believe it?" I believe that weeds do not spring spontaneously from the earth. They are produced from roots and seeds. If we could kill all the roots, and get all the seeds to germinate and then kill the plants, the soil would then be free from weeds. This is a simple truism. But I do not believe that there is any practicable method of making a soil absolutely free from weeds. I think it is possible to cause all the weeds to germinate in say eight inches of the surface soil; but if when this was attained the plow should run half an inch deeper, we should probably the next season have a plentiful crop of weeds. Let these go to seed, and relax all efforts to kill the plants for a few years, and the land would soon be overrun with weeds. But what of all this? The only sensible plan for a farmer to adopt is to fight the weeds, and keep fighting them.

In England, where most of the land is rented, it is a great question how much the landlord or in-coming tenant shall pay the out-going tenant for unexhausted improvements. Mr. Lawes, in one of the ablest papers ever written on an agricultural subject, advocates allowing the tenant farmer a greater liberty in regard to the kind of crops he may raise than is common in most leases. But he says: "The tenant should be required to *keep the land free from weeds*; and, in default, to pay compensation to the landlord or in-coming tenant for the cost of cleaning; such cost to be assessed by competent persons." And he adds: "The cost of cleaning foul land which is in high condition is much greater than that of putting land which is poor in condition, but free from weeds, into good condition."

This is emphatically true, as I have found to my cost. I have had a hard fight with the weeds, but am steadily getting the upper hand of them. I feel savage on the subject, and have little patience with a farmer who looks upon a weed as something to be checked or kept back for the time being, and not killed.

"You say in March Walks and Talks," writes a young farmer at Cassville, Wis., "that soiling in summer and steaming in winter would enable me to keep more stock, but I have always contended it is the food and not the stock that makes the manure. From that we are to understand that the ultimate end and aim of farming is the manufacture of manure." This is pretty much so. It is quite certain that where manure is not one of the principal objects of feeding, soiling and steaming will not pay. In a section where land is cheap and rich, and where feed is abundant and manure is little needed, the mere saving of food will not pay for the labor of soiling and steaming. It is only where land is high and feed expensive that there is any chance of profitably adopting these processes. And on such land and in such circumstances manure is a great object. All I intended to show by my remark (and I must admit that it was rather an unfortunate one) was that even admitting that you could keep one third more stock on the same food you would not make one third more profit, less the expense of steaming, because you would not make any more manure. I buy a good deal of bran and grain to feed out on my farm, and I should think I was doing well if the stock would pay me the market price of the food that I raise and that which I buy, and leave me the manure for profit. Ordinary farm stock will not do this. But I have not time now to discuss this matter

as fully as its importance demands, and I have no wish to get into a controversy with the advocates of steaming. My sympathies are all with them, and with every farmer who is trying to improve our processes of agriculture. I have sometimes thought, however, that it is a pity so many of our ablest agricultural writers spend so much of their energy in advocating deep plowing, soiling, and steaming, when there are so many other subjects of far greater importance on which we need line upon line and precept upon precept.

A man at Reading, Pa., whose name I suppress, wrote me as follows: "I can increase your net profit on sales of live-stock *twenty thousand dollars per annum*. What arrangement can I make with you in reference to payment for such services? I am willing to do this either on commission or salary. It will require no addition to the capital you already have invested in that branch of your business. There is no risk; all operations being cash. I sincerely hope you will not consider the above assertion an exaggeration, or the product of an excited imagination of an unfledged novice, as I can assure you I am no child in operations of this character, and am accustomed to dealing in facts only." I wrote to ask him to tell me how I could raise and keep such an amount of stock on my farm as would afford a *profit* of $20,000 a year. I told him I had no trouble *in selling* stock. But if he could tell me how to keep it more economically, and to raise it in such numbers and of such high quality as to afford such splendid results, I should be glad to hear from him. To this I have received no reply.

We have had capital luck with our lambs this spring. The weather has been very dry, and the sheep were strong, healthy, and in good condition, and this is the great secret of having "luck" with lambs. It is a curious fact that the lambs from Merino ewes sired by a thorough-bred Cotswold are generally as large and sometimes larger than the lambs from Cotswold ewes. And yet many of my Cotswold ewes weigh three times as much, and all of them twice as much, as the Merino ewes. One of the Cotswold-Merino lambs weighed at birth 14 lbs.

I notice a statement of a well-known Merino breeder in the West to the effect that he tried a cross with fifty good-sized "roomy" Merino ewes and a full-blood Cotswold. No difficulty was experienced at yeaning time, and the lambs looked vigorous and healthy for several days, but after that seemed to want more milk than their mothers were able to furnish them, and though on good tame pasture, before the end of summer a few lank, living specimens and more dried pelts were all he had to show as the result of the experiment. "It may be," he says, "that the fault was not in the cross, but in the treatment before and subsequent to lambing. We treated the flock precisely as we treated our other stock." That tells the whole story. Though a sensible man and an experienced breeder, he thought he could bring into existence a lot of large lambs, and have them grow rapidly on the same amount of food required by the small, slow-growing Merino lambs. He "treated them precisely the same;" and consequently it is certain that either the small Merino lambs got more milk than they needed, or the grade Cotswolds got less.

Since writing the above, we have weighed (March 22d) a grade Cotswold ewe, that is about a year old. I can not tell her exact age. I had 74 lambs last spring from 60 Merino ewes. I sold 70 to the butcher, and this ewe is one of the four he left me, and he certainly did not leave me the best. I killed two for the table when from eight to nine months old, and never ate tenderer or more juicy mutton. But I thought it rather deficient in flavor. This ewe we have just weighed is covered with a heavy fleece of long wool that will answer for combing purposes. In fact it is nearly as long as that of the full-blooded Cotswolds. The ewe weighs to-day 121 lbs. Her mother at *four years old* did not weigh over 80 lbs. This is what these cross-bred lambs are capable of doing. This quality of rapid growth on the part of the Cotswolds is the result of years of careful breeding and liberal feeding. Now take such a flock of lambs and starve them, and what does any sensible man think would be the result? Is it not reasonable to expect "lank, living specimens and dried pelts"?

The grade lamb I have spoken of as weighing 14 lbs. was born March 3d. On March 1st we had one that weighed when born 12½ lbs. We have just weighed them again (March 22d). Both of them weigh exactly 25 lbs. each. I allow all my lambs a few oats, fine middlings, bran, sliced mangels, or anything that they will eat, placed in small troughs separate from the ewes; but it is not probable that these two young lambs, only three weeks old, have eaten very much. They have derived their nourishment from the Merino ewe. The milk seems to be very rich, and the secret of it is simply this: The ewes had good pasture last summer and autumn, and have been liberally fed all winter, and before and after lambing have abundance of milk-forming food—such as good clover hay, bran, and a few mangels.

My own opinion is that a farmer who has been accustomed to Merino sheep, and who does not expect to raise more than 75 lambs from 100 ewes, had better have nothing to do with Cotswold, Leicester, or South Down sheep. The poorest Merino sheep he can find, provided they are healthy, will be best adapted to his mode of treatment. When he is prepared to give better feed and more care he should get some improved Merinos; and if he keeps on improving in his general system of management he will in time be prepared to keep a still more artificial breed of sheep, and will at length succeed with Cotswolds or Leicesters. Whether it will pay to keep sheep that require so much more care and better feed will depend entirely on the demand for mutton, lambs, etc.

Some of the Cotswold breeders are disposed to expel me from the party for entertaining such notions—or rather for publishing them. I am not afraid of the truth hurting this splendid breed of sheep. To me it is encouraging rather than otherwise that these high-bred sheep are not adapted to "roughing it" on the cheap lands and vast prairies and plains and mountain-sides of the far West. If such was the case, the best thing we could do would be to pull up stakes and take our flocks out there. But depend upon it that Merino sheep will do better in such sections. Our Merino wool will be raised on these cheap lands, and the long-combing wool, good mutton, and early lambs will be raised in the better farmed and more highly cultivated parts of the country. In fact, I do not see how those of us who live in the older settled wheat-growing sections of the country can keep up the fertility of our farms without keeping more stock. And we have to decide between dairying, or beef, pork, or sheep growing. I think we shall feel the competition from the West in the production of pork, beef, and fine wool, for some years, more than in early lambs, good mutton, and combing-wool. To raise the latter to the best advantage, we need clean, dry, highly cultivated land—or precisely what is needed to produce remunerative crops of winter wheat. The more mutton we produce the more wheat shall we grow per acre.

So far, my mangel-wurzel have kept perfectly. I raised about 3,000 bushels on three acres, and as I had no cellar room to spare, we pitted them on a dry, sandy slope near the barn, and found it far less trouble every way than I expected. It would of course be far more convenient to have a good cellar, but the want of it need deter no one from growing roots.

I have never been a strenuous advocate for raising roots extensively in this country. They probably act as a tonic, and stimulate the appetite, and improve digestion, and regulate the bowels. They are very useful to the farmer who keeps improved stock and feeds liberally. But for ordinary farm stock, fed as most farmers feed, I doubt whether roots can compete with Indian-corn. In England it is customary, especially on sandy farms, to sow one fourth of all the arable land every year with turnips—the rotation being clover, wheat, turnips, barley. The latter crop is seeded with clover. This is pastured with sheep until the next fall, or sometimes for two years, and is then plowed rather shallow and sown with wheat. The land is not plowed until it is time to sow the wheat.

It has been said, and with much truth, that turnip culture is the sheet-anchor of British agriculture. Turnips must have very rich and very clean, mellow land. It is a crop that is all consumed on the farm, and on light sandy soils it is generally eaten on the field where it grew by sheep. The crop needed a heavy dressing of manure, the land was kept very clean, and where the crop was eaten off, and the droppings of the sheep left on the land, and especially with the sheep allowed oil-cake, it is easy to understand that the land would be in high condition for barley and clover, and when the latter crop is also eaten on the land the prospects would be good for a great crop of wheat. It is easy to see, therefore, why the turnip crop has proved so exceedingly profitable to the English light-land farmer.

It is a great mistake, however, to suppose that it is the turnip crop that makes the land rich. This would be mistaking cause for effect. The turnip requires rich land, and its growth and consumption on the farm husband the manurial elements already in the soil, and render them available for grain crops.

Mr. Lawes, in a recent address, after giving an account of his experiments, remarked: "We may learn from these results *that the growth of the root crop did not of itself contribute anything to the fertility of the land.*"

He further said, speaking of his own farm: "I am disposed *to give up the growth of turnips altogether*, growing no other roots but mangolds, and these probably to the extent of not more than one fifteenth or one twentieth of the arable land of the farm."

Coming from the highest living authority on scientific farming, these remarks are certainly worthy of consideration. They are quite in accordance with some statements I have repeatedly made in the *Agriculturist*. But I have not time to say more on the subject at present.

A Western Cattle-Barn.

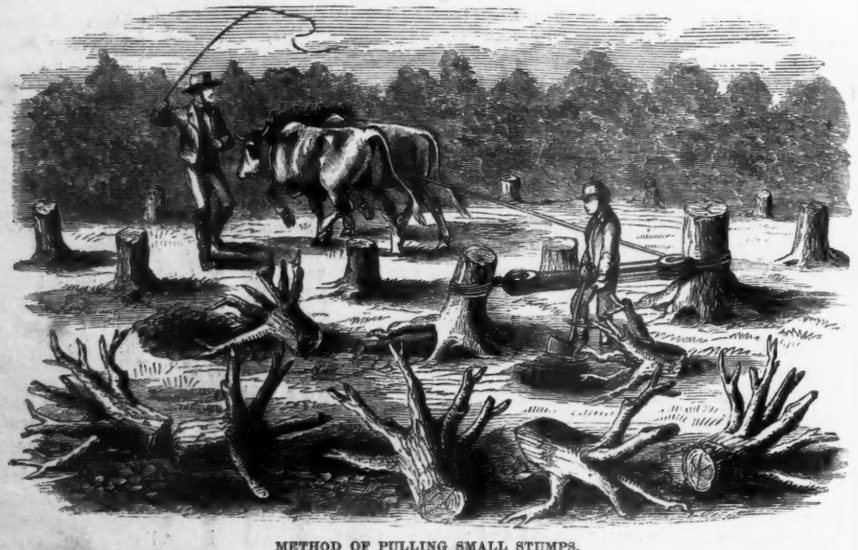
Several requests have been made for a plan of cattle-yard, barn, and sheds for a stock farm. We visited a farm in Illinois last season where we saw a barn and sheds very well adapted to this purpose. The barn was appropriated wholly to hay and grain; the yard was spacious, and

A WESTERN CATTLE-BARN.

surrounded on three sides with sheds, either closed or open, in which the stock was kept. A neat fence closed in the front. The barn was raised three feet from the ground and rested on posts of brick-work. The space thus gained was used as a shelter for those hogs which had the run of the yard. The yards were well littered with straw and the remains of the corn-fodder which had been fed to the stock, by which means a large quantity of manure had been accumulated. Eighty head of stock—cows and steers—had been fed the previous winter in this yard, and the sheds were occupied when we visited the place with several head of cattle just taken off the pastures to fatten. The plan here given is equally well adapted to a large or small farm, as it may be extended at will to accommodate any required number of cattle.

How to Pull Small Stumps.

A subscriber writes: "How shall I go to work to pull the stumps on 15 acres of land? They are from two to eight inches in diameter. What machine do I require?"—No machine. Larger stumps, up to 8 inches, may all be pulled out by using a block and tackle. Blocks of three sheaves should be used, and a rope sufficiently strong for the purpose. A hitch should be taken upon the largest stump, and all those around it drawn out, when another large stump may be chosen to hitch to. In the *Agriculturist* for Sept. 1871, page 338, is a cut of a stump-puller which is powerful enough to take out stumps two feet in diameter, but the method here figured will be found effectual for smaller stumps.

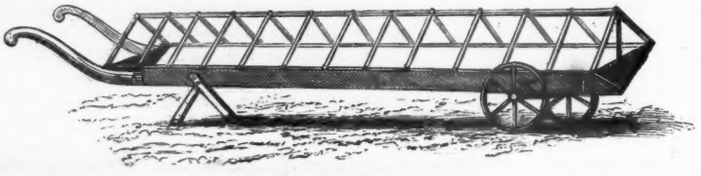


METHOD OF PULLING SMALL STUMPS.

Stumps of two to four inches may be pulled out by a yoke of oxen, by hitching the chain at the top of the stump, and taking two or three turns around it, so as to get a twisting pull upon it.

Sheep-Rack for the Field.

We have heretofore spoken of the benefit of pasturing fields with sheep. Often a poor field may be much improved by turning in a few sheep and feeding them therein. In this case some supply of grain is necessary for the sheep, and useful to the land. We give a cut of a movable trough adapted to this purpose, which may be taken to any part of the farm or wheeled to any poor spot in the field where it is desired to get a quantity of manure. It is a common trough of boards, mounted on a pair of wheels at one end, and furnished with legs and a pair of handles at the other end. A bar, with cross-bars reaching from it to the sides, made of light laths, are fixed to the top of the trough to prevent the sheep from jumping into it. Its hight is regulated by the size of the sheep.



A PORTABLE SHEEP-RACK.

Fodder-Corn—Planting.

The time for planting corn for fodder (for the main crop) is the same as for the grain crop. The land, enriched and prepared as directed in an item on page 127, in April, should now be made thoroughly fine, clean, and smooth. One plowing, and repeated harrowings just before planting, will leave the soil fresh and loose, and will give the crop a fair start with the weeds.

The rows should be marked out 3 feet apart (if possible north and south). Abundant light and air are necessary to the perfect development of the plant. We were once advised by a farmer friend to plant our crop in drills, 10 inches apart, because this would cause the corn to shade the ground completely, and obviate necessity for weeding. At the end of that season the friend who had advised it, said he was satisfied that "fodder-corn was a humbug, and not fit to feed to a decent cow." The advice had come to us after we had already planted at three feet, and the reply to our friend was, that we considered the corn-fodder we were then using the best butter-making food we had ever had. Later experience and observation have confirmed the belief that the *quality* of corn-fodder depends more on ventilation and light to the very ground than even on the richness of the soil. Probably a heavier weight of crop is produced at three-foot intervals than at anything less, owing to the greater hight and better development of the plants. No doubt the best variety of corn for this use is some rank-growing sweet corn, but as the seed of this is costly and often difficult to procure, we have settled on what is known in the market as "Western mixed," a yellow, dented, "horse-tooth" corn, which produces a large crop, and develops a good proportion of saccharine matter in the stalk.

We use about four bushels of seed to the acre. This may be strung along the row by hand, or, better, planted by an Emery drill planter, set to discharge at its fullest capacity. If the land is tolerably free from stones, our advice would be to plant fully two inches deep, and then run a Thomas smoothing harrow over the field, just as the corn first begins to break ground. This will make the surface light and fine, and will destroy an immense number of weeds that would soon give trouble. An acre of corn planted in this way on thoroughly rich ground may, if the cutting is commenced early enough for a second growth to follow, be depended on for the chief support of ten cows during the two driest months.

Digging Post-Holes.

The labor of digging post-holes is the chief cost of setting up a fence. This can be economized by using the proper tools. Fig. 2 is a post-auger (shown without handle) which is an improvement on any we have seen. We procured one from B. K. Bliss & Sons, N. Y., and found it on trial to be excellently adapted for the work. It penetrates the ground easily, working its way as a common auger does in

wood, and when the pan surrounding the auger is filled with earth it may be drawn out and emptied. But where many stones are in the soil other tools are necessary. Then the bar

Fig. 1.—USE OF POST-HOLE SPOON.

and post-spoon (fig. 1) are needed. The bar is a common iron bar, with a sharp steel point, with which the hard gravel is loosened. The spoon is inserted in the hole and the stones and earth taken out. This post-spoon is made by R. H. Allen & Co., Water street, New York. We have found it a very handy tool in use. With these tools, post-holes may be made so small that the post will fit tightly in them, requiring little

Fig. 2.—POST-HOLE BORER.

filling, and making a firm, solid setting. A great saving is gained over the common method of digging with pick and shovel, whereby a hole is needed to be made as broad as it is deep.

In setting posts, it is an excellent plan to fill the hole around them with stones, which do not retain water while they admit air, thus preventing the posts from rotting for many years.

How to Manage Manure.

The value of liquid manures is not sufficiently realized. One cow voids in the course of a year 8,000 pounds of liquid, which undiluted and fermented would be too strong to apply even to grass. It is safe to say that not one thousandth part of this is ever saved for use, but nearly the whole is allowed to go to waste. Further than this, the construction of barn-yards is so imperfect that much of the valuable part of the solid manure is washed away and wasted, or it is permitted to ferment and heat in such a manner that its value is much lessened. Struck with these views, we once went to work to economize all these wastes. A square pit was dug in the center of the barn-yard, four feet deep. The sides and bottom were planked. The bottom sloped to the rear about six inches. Blocks were laid on the sloping bottom (*a*) and a quantity of rails and poles were laid across, to make a false bottom, on which the manure was thrown as it came from the stable. Drains from the stables and sheds carried all the liquids into this pit, where it escaped at the rear into the cistern (*d*), together with all the water which filtered through the manure pile after rain had fallen on it. The cistern was lined with hemlock plank, which after three years was still perfectly sound, and was ten feet deep and eight feet square. A pump of wood (*c*) similar to that figured on page 339 in our volume for 1871 (fig. 1) was set in the cistern, and when necessary the rain-water from the barn roof was turned into it to dilute it. In this way a large quantity of liquid manure was procured, which was found of the greatest service both in the garden and in the field. Spread on a piece of clover it enabled four cuttings to be made during the season, which was estimated as equal to five tons of hay to the acre, and which otherwise on account of the dry season could have been cut but once, with but a fourth of this yield.

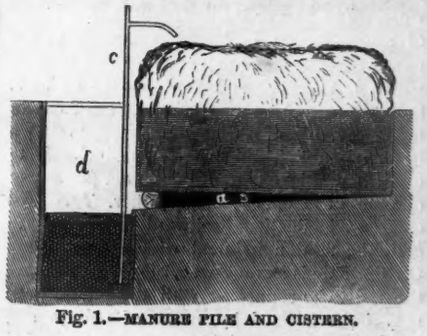


Fig. 1.—MANURE PILE AND CISTERN.

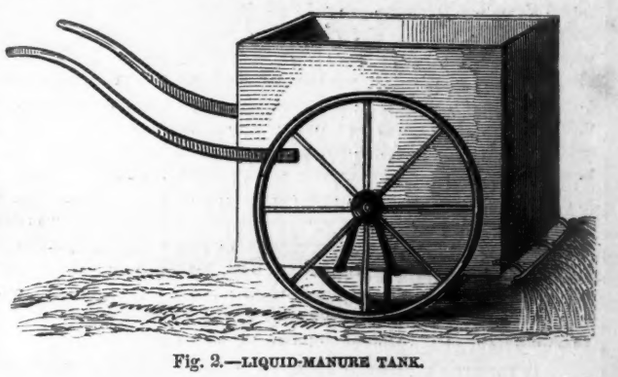
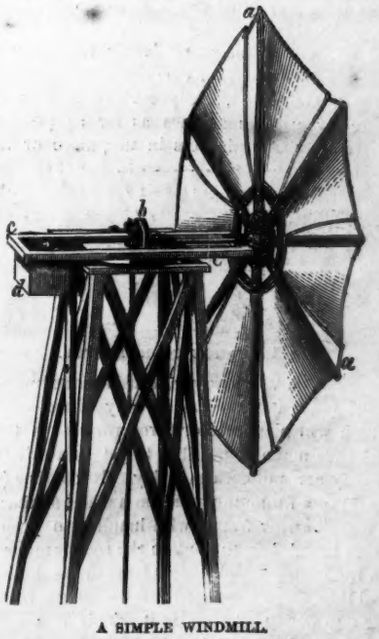


Fig. 2.—LIQUID-MANURE TANK.

For hand-use the wheel-tank (fig. 2) was made with joints dovetailed and put together with strips of brown paper smeared with tar placed between them. This made them water-tight. The tank was three feet square and deep, and scattered the liquid over six feet wide, or over three rows of fodder-corn, which in this way, while young, could be easily watered with this cart at the rate of an acre an hour, and thus its early growth could be rapidly forced. Of all the economies of the farm it is safe to say that there is none in which greater improvement and saving may be made than in that of the management of manure, and the saving and utilizing of all the liquids. Here is a simple and inexpensive plan, which may, however, be improved upon after experience of its usefulness and possible defects. The pump by being turned could either discharge the water from the cistern on the manure-heap to prevent too much heating, or directly into the small tank or any other spreading apparatus.

Windmills for Farm Work.

Many of our readers are interested in the question of the applicability of the power of the wind to the light work on the farm. Before the introduction of steam, wind and water powers were the motive agents of machinery, and even now water powers are found to be of such value in respect of cheapness that they are very seldom idle, even in presence of facilities for the use of steam. In the same way wind powers are still largely used in old-settled countries, and steam has not driven them out of use. In the northern parts of Europe—Germany, Holland, Belgium, France, and England, for instance—windmills are in constant work, some of which are over a century old, and are doing good and cheap service. There is no doubt of the fact that wind-power might be largely used in the United States with great advantage; but many patents having been taken out for improvements on windmills, and all of them being persistently forced upon the notice of the public, and many of these being found not efficient or cheap in practice, a prejudice seems to have arisen against them. But the old-fashioned mill remains unaffected by patent rights, is just as useful as



A SIMPLE WINDMILL.

ever, and so simple that a mechanic who can construct a simple water-wheel or wagon-wheel is competent to make one. We figure such a windmill, which is in every-day use, which costs very little, and which may be constructed to do

light or heavy work, as desired. The frame on which to mount it may be of timber, as in the cut, or it may be a stone or brick building if desired for a substantial machine for heavier work. The power is constructed in the shape of arms—shorter or longer, according to the power needed—fixed to a center-wheel or hub, which is mounted and keyed on to an axle. Sails are carried on these arms, of sail-cloth or heavy sheeting, of a triangular shape, as shown in the engraving, which are fastened closely to one arm and by a cord at the corner (shown at *a*) a foot or less in length to another. This gives sufficient inclination backward to the sail to gain the motion required with a front wind. On the axle is a crank-wheel (*b*), which moves the rod to be connected with the pump, or it may be connected by means of pulleys and bands to get an upright rotary motion needed for grinding, or a pair of miter-wheels will give a horizontal rotary movement. A frame (*c*), is carried on a circular table, on which it may be revolved so as to enable the sails to be presented fairly to the breeze; a box (*d*) at the rear end of the frame is weighted with stone, to balance the weight of the arms and sails. A pin passed through holes in the circular table retains the frame in the position needed, and keeps the sails faced to the wind.

The construction of this mill is so simple, and it is so easily managed, that all those of our correspondents who of late have anxiously inquired for a cheap power for churning, pumping water, and irrigating land will do well to study it out. A mill with arms six feet long may be made to do work equal to one fourth of a horse-power, if all the working parts are well fitted and kept well lubricated, as all machinery should be. When out of use, the sails are untied and removed, or they may be furled and clewed to the arms until again required.

Implements for Cultivating Corn.

The corn crop is one which requires more hard labor than any other grain crop on the farm. Generally it is planted, covered, cut up, husked, and shelled by hand, rendering necessary at least ten days' labor for every acre before everything is completed. A great saving may be made by using machines as far as possible. There are many planters in use, more or less

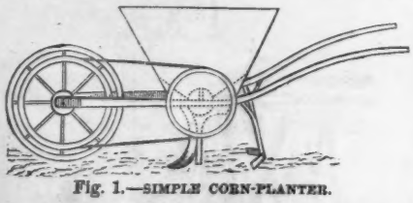


Fig. 1.—SIMPLE CORN-PLANTER.

costly, but a very cheap and useful one may be made for a few dollars by any wheelwright, which will plant two or three rows at a time, and thus make it possible to get in twelve or twenty acres of corn in a day. It consists (see fig. 1) of a frame mounted on a wheel similar to a wheelbarrow frame, with handles to push or guide it. A box to contain the seed is mounted on the frame, which tapers toward the bottom, and thus obliges the seed to fall upon the revolving cup which distributes it. This is a cylindrical block of wood which fits closely to the bottom. An axle passes through it which is connected with a pulley outside of the box. This pulley is turned by means of a band or cord fitting into another pulley fixed to the driving-wheel, and every revolution of the wheel causes one revolution of the pulley and likewise of the cylinder inside the feed-box. A cup or receptacle made by boring a hole with an auger or bit, large enough to hold three or four grains of corn, is made in the cylinder, which in passing around is filled with seed. The seed is carried on until it passes out through the open

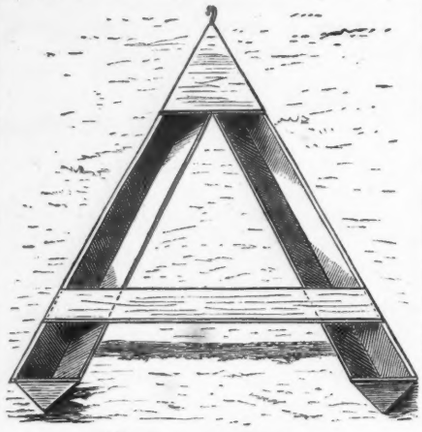


Fig. 2.—CORN-COVERER.

bottom of the box in which the cylinder is made to fit closely, and is dropped into a tube which conducts it into the furrow made by the small plow in front; a semicircular scraper carried behind covers the seed. It is obvious that by adding to the width of the machine it may be made to drop two or three rows at the same time.

When corn is dropped by hand after the field has been furrowed out in squares, it may be covered, two rows at a time, by a simple contrivance shown at fig. 2. It is simply a triangular implement, made of narrow boards six inches wide and six feet long, nailed together by their edges in the form of troughs, and fitted into a V-shape, with a spread of five feet between the ends. A cross-piece is nailed on to hold it together, and a hook placed at the point, by which it is drawn along the furrows and the loose earth drawn over the seed. If it should not be found heavy enough, stones or some earth is thrown into it until the weight is right. It covers two rows at a time and may be drawn by one horse. For cultivating corn we have used a harrow shaped like that shown in fig. 3. It is made wide enough to work two rows at a time, passing over the young corn in the intermediate row by reason of the vacant space left in the front where the teeth are not put in. A pair of handles enables it to be guided and managed with facility. Two horses are required to draw this harrow, and if the ground is moderately clean no other tool is required. Hilling up corn with the plow is unnecessary, and flat cultivation with the harrow or horse-hoe is considered to be preferable.

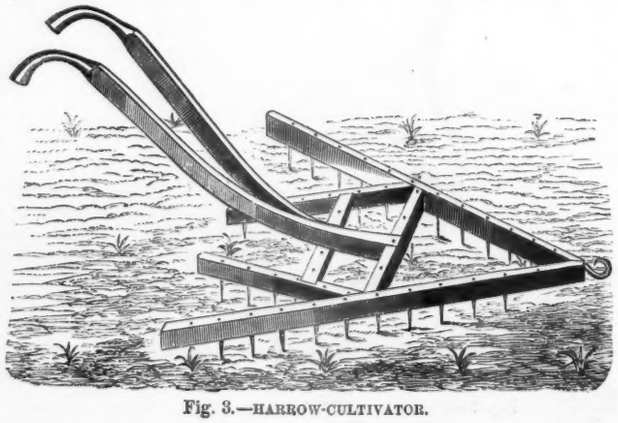


Fig. 3.—HARROW-CULTIVATOR.

HOW TO USE SAWDUST.—Some years ago we had the control of a large supply of sawdust, which we used as bedding for horses and cattle. We used it through two years, and had a good opportunity of testing its value in the stable and in the manure pile as well as on the soil. The main bulk of the sawdust was from pine. When spread on the stable a few inches in depth, it absorbed completely all the liquid from the animals, and their coats were consequently kept perfectly clean, and very little labor was needed to keep oxen and cows free from dirt, even during the winter. When thrown out into the heap, this litter fermented and rotted very readily, without fire-fanging, and soon became a homogeneous mass, not to be distinguished from clear fermented horse-manure. It was used with the very best effect as a dressing on meadows, and as an application for potatoes and oats. It was readily harrowed into the plowed soil, and the harrow spread it very evenly over the grass-land. Our experience was so favorable, that we should be glad to use it again.

Ridge and Furrow Plowing.

It is a common practice amongst English farmers to plow those fields which they intend to put into spring crops, in the early winter, on what they call the ridge and furrow plan. By this method the subsoil is exposed to the repeated frosts and thaws of the winter, and is mellowed and sweetened. Besides this the frost is enabled to penetrate several inches deeper than otherwise, lifting the compact subsoil and expanding it so that when it thaws in the spring it is loosened and rendered of an open texture. The mode of working is as follows: The plowman commences at one side of the field, and plows a furrow towards the outside. He returns in the same furrow, plowing up the subsoil and throwing it out on the unplowed land. He then plows another furrow parallel with the first, throwing the soil towards the subsoil last thrown out, and thus completes a ridge. He thus progresses throughout the field, which presents, when finished, a series of these ridges, separated by deep furrows, in which the subsoil is exposed. In spring these ridges are either split or the field is cross-plowed. It is thus evident that one such plowing deepens the soil over half the field just as many inches as the plow has penetrated into the subsoil, and another similar plowing may be made to complete the strips left in the first operation. This operation has the advantage of bringing to the surface a portion only of the subsoil at one time, and thoroughly mingling it with the surface soil, after exposing it in a most complete manner to the beneficial action of the atmosphere for some months. It would be a valuable experiment to make on a portion of a field to thus prepare a piece of corn stubble for oats next spring, and test the value of the process. We have no doubt it would be so satisfactory that the plan would be regularly adopted in future by every experimenter. Three acres a day may

be thus plowed, and if the ridges are split in the spring, the same quantity of work may be done, so that really a saving of work will be made, as one and a half acre per day will on the whole have been plowed; and the land can be worked earlier, and is in excellent condition for spring crops. In preparing for roots the manure may be thrown into the furrows and covered when the ridges are split, when it will be in fine order to cross-plow in the spring.

A Good Wool-Box.

Mr. F. M. Bugbee, Ohio, sends us the accompanying sketch of his wool-box. It is composed of three boards, each three feet long,

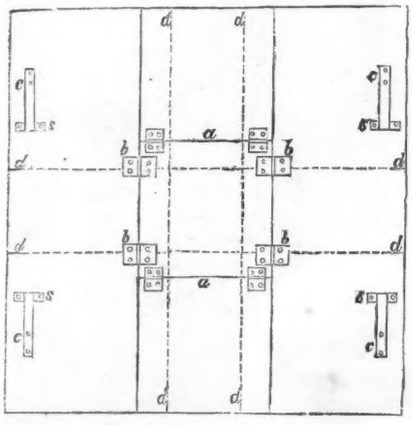


Fig. 1.—WOOL-BOX OPEN.

one inch thick, and twelve inches wide. The center one (fig. 1) is divided at equal distances at *a*, *a*, and connected with hinges opening upwards. The two outside boards are joined to the center square by hinges at *b*, *b*, *b*, *b*, also opening upwards. At *c*, *c*, *c*, *c*, screw on the springs, cutting away the wood underneath so that they may lie flush with the boards when pressed down. At *d*, *d*, *d*, *d*, make a cut one inch deep with a thin saw, to hold the ends of the strings. Make a hook (*e*, fig. 2) of hard wood, one inch thick and fourteen inches between the jaws, and the box is done.

To use it, first fix the strings from the cuts *d*, *d*, *d*, *d*, in the direction of the dotted lines

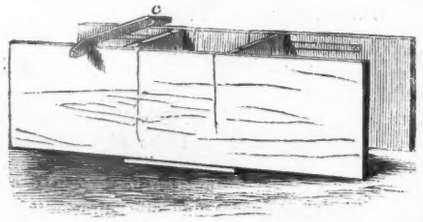


Fig. 2.—WOOL-BOX CLOSED.

on fig. 1. Lay the fleece with the clipped side downwards on the boards, bring up the sides, which secure by placing across them the hook, as in fig. 2; then close the ends, which the springs will keep in their places; tie the ends of each string tightly over the wool; then remove the hook, and the box will fall back, leaving the fleece tightly packed and tied.

Our correspondent claims the substitution of the springs instead of using pegs as a great improvement. And such is the case. But it is not new, as we have used a similar box for several years. It may, however, be new to some of our readers, and we present it accordingly. The use of some such contrivance in packing wool is always to be recommended, as it leaves the fleeces in a more presentable shape, and enables them to be packed more closely in the sacks. With wool, as with all farmers' produce when sent to market, the best price is gained for that which not alone *is* good but looks well.

Disease in Calves.

Several have inquired about a disease to which young stock, particularly calves, have been lately subject. The symptoms are, falling off from feed, rough coat, bloodshot eyes, dry nose, a cough, and a highly fevered condition. On examination after death, small thread-like worms are found in the air-passages. It is often supposed that these worms are the cause of the trouble. This is a mistaken idea. This complaint is undoubtedly influenza, and the consequence of exposure to damp and cold, with an enfeebled state of the system. It is not necessarily fatal, if proper attention be given. Warm gruel of bran, middlings, or oatmeal is of service, a warm stable is necessary, and generally a careful restorative treatment will bring about a cure. The worms seem to be one of the last results of the disease, and are found not only in the air-passages, but also in the lungs. This complaint prevailed amongst the lambs last spring, and some of ours were attacked, but recovered by the administration of a little warm gruel, with a few drops of peppermint-water added, fed to them with a spoon. We notice that it has also been very prevalent amongst young stock in England, of late, but readily yielded to treatment similar to that we have suggested above. Prevention would be by means of warm shelter and generous feeding.

THE VALUE OF SOOT AS A MANURE.—As soft or bituminous coal becomes more extensively used west of the Alleghanies, it will be of great importance to farmers of the Western coal districts to understand the value of the soot which is left in large quantities as a deposit in the chimneys where this coal is consumed. Soot accumulates in chimneys so rapidly that it is necessary to remove it very often, and it is far too valuable to be allowed to be lost or wasted. A French chemist has made an analysis of coal-soot, by which we ascertain that in 1,000 pounds the following quantities of valuable ingredients as fertilizers are contained, viz.:

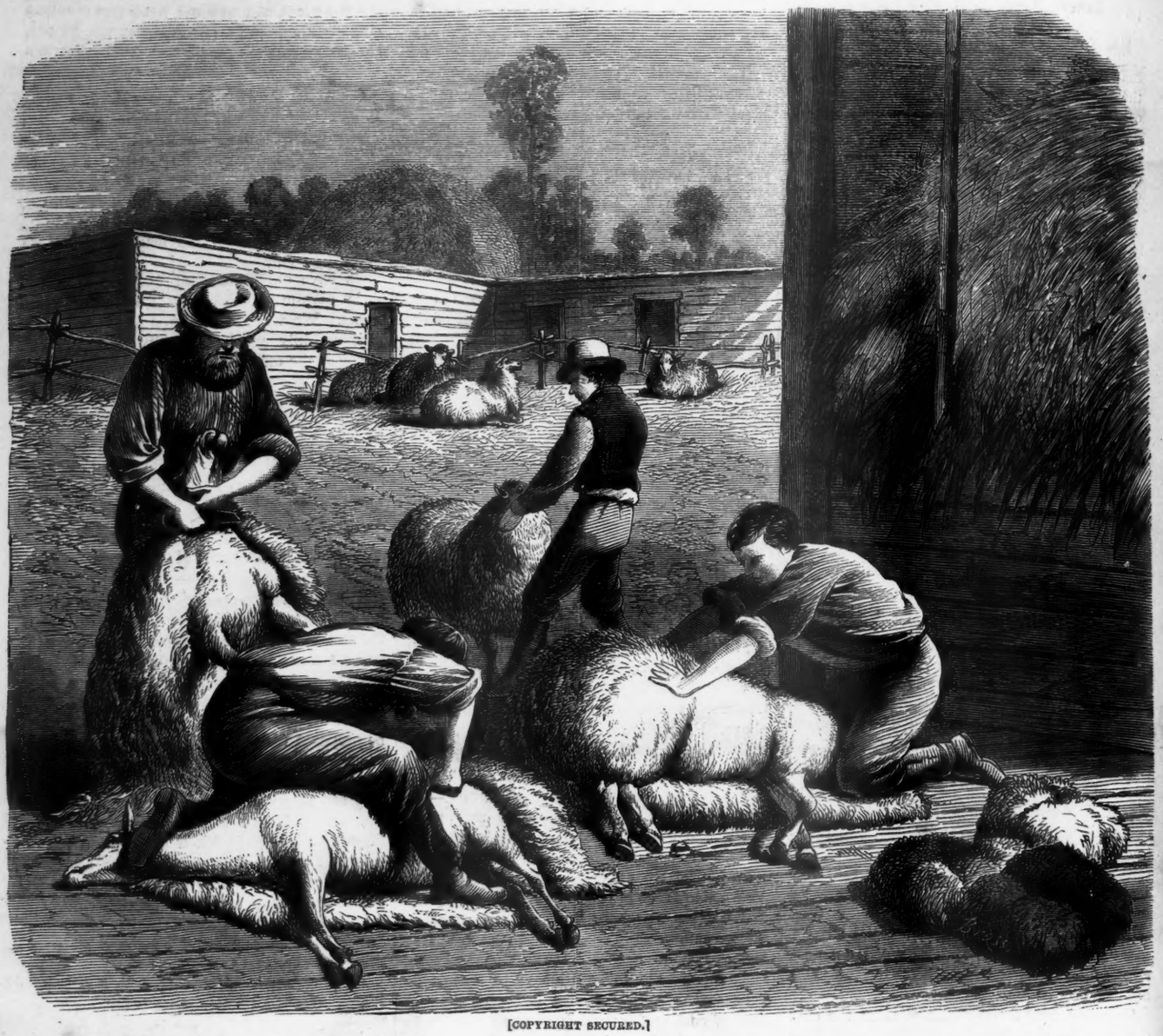
A substance resembling vegetable matter, soluble in caustic potash	302 pounds
A substance, soluble in water, containing nitrogen	200 "
Carbonate of lime and magnesia	150 "
Sulphate and acetate of lime and magnesia	112 "
Phosphate of lime	15 "
Chloride and acetate of potash	45 "
Acetate of ammonia	2 "
Charcoal powder (carbon)	38 "
Water and sand	136 "
	1,000 pounds.

A glance at these constituents will readily show that soot contains valuable fertilizing properties, while its very fine state of division renders it most easily and effectively applicable to crops. In Europe it has been used for years as a top-dressing to all crops, but with notably most effect on grass, wheat, and oats. Its pungent character and very bitter taste make it desirable as a preventive against the turnip-fly and the cut-worm and caterpillars, which injure cabbages. As it is a new article of use to American farmers, it would be of interest to experiment with it on various crops, and note its effects, with the precaution to be observed, that in quantities greater than ten bushels per acre it is apt to *burn* the crops in dry seasons. It should therefore be applied previously to the rains of spring or fall, or in small quantities of say four bushels per acre, repeatedly.

COOKING FOOD FOR PIGS.—H. J. Fisher, Preble Co., Ohio, asks the following questions: "Do you feed cooked food to your pigs? What steamer do you use? and do you think it pays?" —We are now feeding our *young pigs* cooked corn-meal and fine middlings, all they will eat, and give them sliced raw mangolds in addition. They are very fond of the mangolds, and we think them cooling and healthy. The breeding sows have only uncooked food—bran and a little corn-meal soaked in water for twelve hours. We have a Prindle steamer, but when cooking only a small quantity of corn-meal, etc., we take off the top and use it as a kettle. We think cooking food for young pigs that we wish to push rapidly forward pays well. Our aim is to get them to eat and digest as much food as they can assimilate. For old breeding pigs that can digest all the food we allow them and more, cooking or grinding is a mere waste of labor and fuel.

The Culture of Peanuts.

The best soil for peanuts is a light loam, light both in texture and color. The plant needs the mellow soil for its peculiar habit of growth, and a red or dark clay soil gives an undesirable color to the nuts, which depreciates their market value. The soil should be prepared by one or two plowings, so that a perfectly mellow bed be prepared for the seed. A shallow furrow is considered the best, for the reason that the harvesting of the nuts is rendered easier when they are nearer the surface; if the soil is deep they will penetrate further than is convenient in gathering them. When the ground is prepared in a proper manner, furrows are to be laid off twenty-seven to thirty-six inches apart, as the land may be poorer or richer. Cross-furrows are made at the same distances apart. In each check a handful of guano or superphosphate is to be dropped, at the rate of 150 pounds per acre. If the land is deficient in lime, a dressing of 50 bushels per acre should be given after the first plowing, and harrowed in. This is a crop that needs lime for its successful growth. The seed should be shelled very carefully by hand; the skin must not be broken. Two nuts are dropped in each hill and covered very lightly, not more than two inches, or three at the most. Directly after planting, cultivation with the plow commences, to be followed with the hoe and hand-weeding. The crop must be kept perfectly free from weeds and grass, and the soil be kept loose and mellow. Constant cultivation is necessary; as many as seven plowings being generally given until the vines spread and are in the way, when hand-weeding is to be resorted to. No hilling up is necessary. The stems which produce the fruit enter the ground without being covered with the soil artificially. Generally the crop is ready to harvest early in October. The harvesting should be done before frost if possible, as a hard frost destroys the vines and detaches them from the nuts. A plow with a broad, sharp share attached to a bar or coulter, so that no furrow is turned, is run up and down the rows, cutting beneath the plants and severing the tap-roots, or the vines are dug up with prong-hoes or forks. Hands follow the plow, who pull up the loosened vines and shake off the adhering earth, and lay them in rows to



[COPYRIGHT SECURED.]

SHEARING COTSWOLDS AT HERDSDALE.—*Drawn and Engraved for the American Agriculturist.*

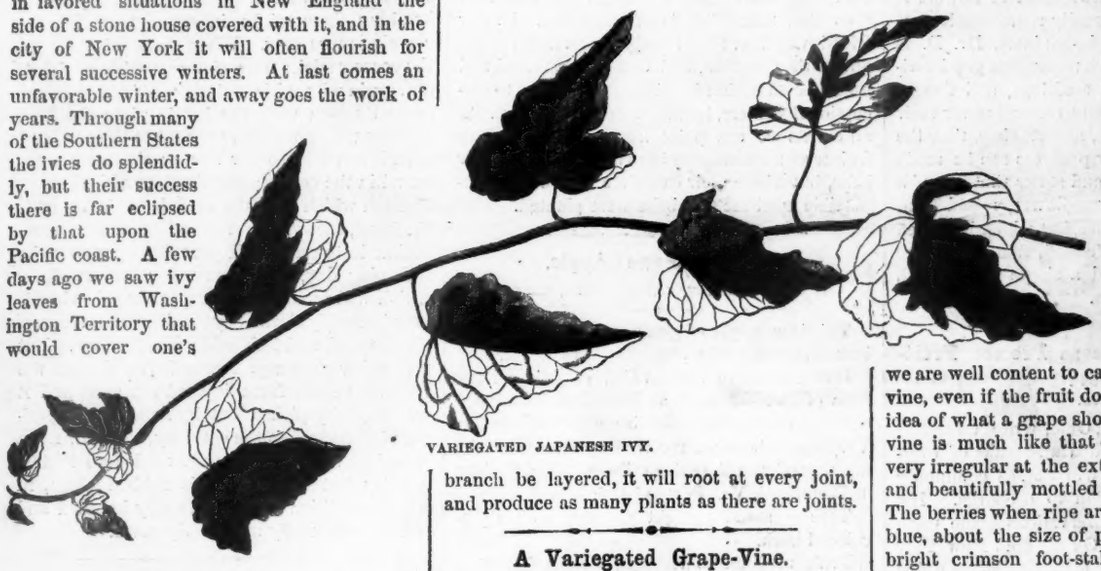
dry. Two days' exposure is necessary before they are ready for stacking for final curing. A stake, pointed at both ends, and seven feet long, is thrust into the ground, rails are laid on the surface to prevent contact with the earth, and the vines are heaped around the stake in a tall, narrow stack, so that the air can easily penetrate and cure the vines. Straw is placed over the top to shed rain, and two weeks are required to thoroughly cure the crop. Mold or dampness, which would injure the color, is to be carefully avoided. On the brightness and lightness of the color the value in a great measure depends. When cured, the nuts are separated by hand generally, but this is a slow process, two to four bushels daily being the work of an experienced hand. A thrashing machine is used by large growers in North Carolina, which thrasnes with two horses 100 to 200 bushels in a day. The vines make a very excellent fodder, but when spread on the ground and plowed in, and a dressing of lime given annually, with some fertilizer at planting, the crop may be grown successively for several years. It is not probable that this crop would retain its present market price if its production was materially increased, the demand being but limited; and, in view of its comparatively costly culture, the average yield of 30 to 50 bushels per acre does not seem to make it a very enticing crop. The season required for perfect ripening is long, and it is very doubtful if the nuts could be matured further north than Virginia in the East and Kansas in the West. Nuts of excellent quality were grown in Kansas last season, but the bulk of the crop is raised in East Virginia and North Carolina, in the localities adjacent to tide-water. Our correspondents in Wisconsin, Michigan, and other Northern States will see that this crop is not suited to their climate.

Shearing Cotswolds.

Our illustration represents the shearing of a flock of Cotswolds at Herdsdale, the farm of our Mr. L. A. Chase, at Florence, Mass. The operation of shearing, although it looks a somewhat rough one, may be made by a careful hand very easy to the sheep. General directions for shearing were given last month on page 140. Some care is necessary in handling heavy sheep, especially the ewes which have not yet had their lambs. The patience and docility of the sheep beneath the operation of shearing is proverbial, but still we have seen very unnecessarily rough usage given to them. Possibly no better shears can be found than the old-fashioned ones, and a skillful shearer will make as few cuts with them as with any of the new-fangled ones with patent guards and other preventives against cutting, which when used are found to be no guards at all. The operation is commenced at the neck of the sheep, the shearer standing behind it, as shown in the illustration. The remainder of the work is better described by the picture than it could be by a page of description. It is therefore only necessary that the positions of the figures be studied, and they will tell their own story. Long-wooled sheep have a rather tender skin, and if the weather after shearing should be wet and cold, it would be advisable that they be kept up until they become used to the loss of their coats. If any signs of cold or running at the nose appear after clipping, it is well to smear their noses with pine-tar, which they will lick off, and thus take sufficient internally to have a remedial effect.

Ivies—Plain and Variegated.

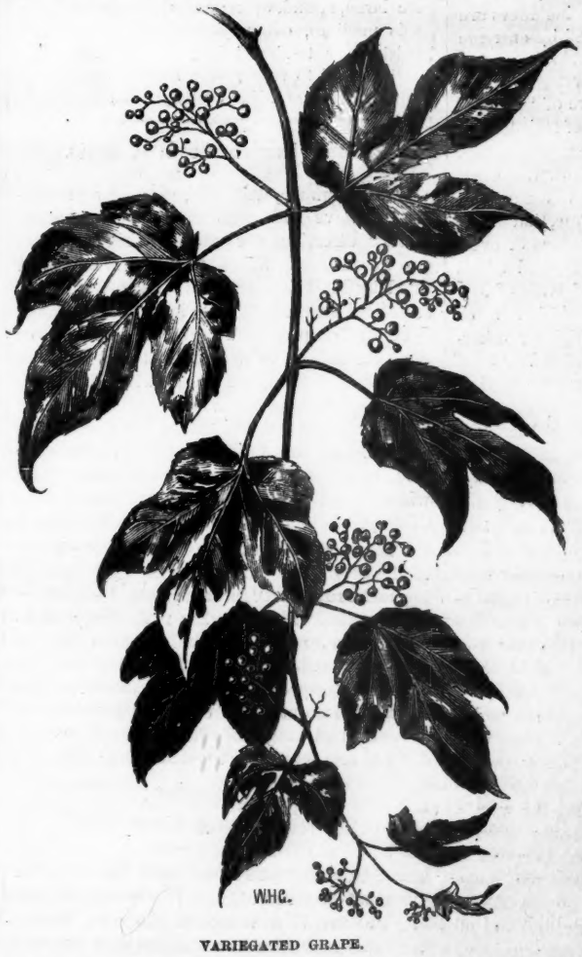
But few north of Delaware can grow Ivy as a climber and be sure of it. We have seen in favored situations in New England the side of a stone house covered with it, and in the city of New York it will often flourish for several successive winters. At last comes an unfavorable winter, and away goes the work of years. Through many of the Southern States the ivies do splendidly, but their success there is far eclipsed by that upon the Pacific coast. A few days ago we saw ivy leaves from Washington Territory that would cover one's hand, palm, fingers, and all. Still, in all places not excessively inclement, ivy can be grown as an edging, or to make a bed by itself. A slightly raised bed covered with ivy looks well upon a lawn, the darker green of its foliage making a pleasing contrast with the lighter shade of the grass. A well-kept edging of ivy is particularly elegant, and though it may take a full year to establish it, the result is well worth the trouble. As to the different species of ivy, we frankly confess that we know nothing positive about them. Several years ago the late Berthold Seemann "did up" the ivies, and told us that what we had been calling Irish ivy was *Hedera Canariense*, and made us unlearn many other things we thought we knew. A few years later came Shirley Hibbard with his classification of ivies. He not only knocked Seemann's arrangement into "smithereens," but that of every one else, and came out with an original renaming of old things made out of whole cloth. Between Seemann the botanist and Hibbard the egotist the nurserymen are in a poor case as to names. The variegated ivies, as a general thing, have a hard time of it during our hot summers. They are beautiful in house culture, but lose their markings under our summer suns. Some years ago Mr. George Such, of South Amboy, N. J., gave us a bit of what was then a new Japanese Ivy, and is now called in the catalogues *Hedera Japonica versicolor*. It has been subjected to all the slights and exposures that any plant should meet with, and yet year after year it has grown freely, and put out its beautifully variegated leaves as cheerfully as if it had received the best of care. The form of the leaves in this plant is so changeable, that it is difficult to say what the normal shape is. The coloring is no less whimsical. Some leaves are merely edged with white, others are half white and half green; sometimes one will come all white, and again a tinge of purple will be pleasingly intermingled with the white and green. We give an engraving of a small branch of this variety of the natural size. We think it probable that in even very cold localities the hardier Ivies can be grown as edgings or as beds, provided a good covering of leaves be given to protect them during the winter. The catalogues of most of our nurserymen and florists offer a dozen or more varieties at 25c. to $1 each, according to size and rarity. Ivy roots readily from cuttings set in moist soil in a shady place, or if a branch be layered, it will root at every joint, and produce as many plants as there are joints.



VARIEGATED JAPANESE IVY.

A Variegated Grape-Vine.

We sometimes come across plants in cultivation which are puzzles. That which we call the Variegated Grape-vine is one of these. We find it in some catalogues as a *Cissus*, and in another as a *Vitis*, while an esteemed friend insisted last summer that we should come and see his beautiful variegated *Ampelopsis*. To explain these names a little, *Cissus* is one applied to some beautiful green and hot-house climbers of the grape family; *Vitis* is the grape proper, and *Ampelopsis* we best know as the Virginia Creeper or American Woodbine. As the later botanists have been unable to find any points in these three genera which seem of sufficient importance to keep them separate, the three are by some united into one—*Vitis*, the grape. This helps us with the plant in question, which has been so bandied about under different names that we are well content to call it a variegated grape-vine, even if the fruit does not come up to our idea of what a grape should be. In foliage this vine is much like that of the grape in shape, very irregular at the extremities of the shoots, and beautifully mottled with white and green. The berries when ripe are of the most charming blue, about the size of pepper-corns, and upon bright crimson foot-stalks. This vine is one which will either give great satisfaction or produce disappointment, according to the position in which it is grown. If planted in a place where it is shaded the greater portion of the day, it will produce handsomely-marked leaves, but if exposed to full sun the foliage will be dull and unsatisfactory. This variegated grape is not a new plant, as we grew it some twelve years ago. Our specimen was unfortunately placed in an open exposure, and it made so poor a show that we were quite disgusted with it. Since then we have seen it in the grounds of others, grown in the shade, with the markings quite as distinct as those shown in the engraving.



VARIEGATED GRAPE.

Crossing and Hybridizing.

Dr. Denney has given in the Florist and Pomologist (London) some interesting articles upon cross-breeding Pelargoniums. His accounts of his experiments and their results are of great value to those concerned in producing new seedling Pelargoniums and other florists' plants, but are not of sufficient general interest for us to reproduce them. There are two points made by Dr. D. which should be kept in mind by those who aim at raising new varieties of fruits and flowers by hybridizing or cross-fertilizing. He finds that, provided the two parent plants are of equal health and vigor, the male plant exercises the greater influence upon the progeny. That is, the resulting seedlings will be in more respects like the parent from which the pollen is taken than like that which received the pollen and bore the seed. It is likely that this holds true with other plants. The

Croton and Senasqua grapes are vastly more like their pollen-bearing exotic parents than the native Delaware and Concord which served as the mother-plants. Another point of interest to those who work at improvement of flowers is the infrequency of any really remunerative results. In flowering Pelargoniums, Dr. D. is satisfied if he gets on an average one good variety out of four hundred seedlings, and five or six others that are fair improvements over their parents. He is satisfied, nevertheless, that the only way that even slow progress can be made is by cross-fertilization, and states that out of a bed of several seedlings in flower, raised from seed from the best varieties, but which had been produced without artificial fertilization, there was not in the whole bed a single plant worth selecting for propagation.

Will Evergreen Screens Protect Fruit-Trees?

Mr. J. Day, of Dayton, Ohio, writes an article to show that shelters and wind-breaks of evergreens and other trees will not, as commonly believed, afford protection to orchards. His argument rests upon observations made upon peach and cherry trees. On the cold New Year of 1864 the thermometer fell about 50° in a few hours, and in the morning stood at 14° below zero. Our correspondent found that the buds and twigs of peach and cherry trees were as thoroughly killed in orchards surrounded by dense forest of miles in extent, as they were in the open country. Several other instances are cited, in which the buds were killed by extreme cold, notwithstanding the trees were surrounded by forests. The drift of Mr. D.'s argument is, that forests and evergreen belts are of "no protection against the severe freezing of fruit-buds." As we never claimed that they were, we can not spare space for a long article to show that they are not. We never knew any one to assume, as Mr. D. seems to think has been done, that it was possible to fence out the cold by means of evergreen or any other trees. Mr. D. will admit that a board fence or a screen of trees of any kind will break the force of the wind more or less, as the shelter is close and high or otherwise. This is all we have ever claimed or have have ever known to be claimed for a protecting belt around an orchard. We are ready to admit that no amount of shelter will protect the fruit-buds, when the thermometer is 20° below zero. Our correspondent makes the mistake of supposing that it is only the severe cold that injures fruit trees. When the mercury falls to a certain point, we are quite sure that peach-buds will be killed, but this severe freezing is not the only thing that interferes with the productiveness of the trees. The winds of early spring are often very dry winds, and if they have an unobstructed sweep over the trees, the vitality of which has just awakened, they can produce great injury, simply in drying out the just swelling buds and young twigs. A wind carries away the heat from a body very rapidly. A still day, with the thermometer at 32°, is not uncomfortable, but if the wind is violent, we find it very inconvenient, even while the thermometer remains the same. We have known persons to perish from cold in a Texas "norther," when the temperature was above freezing. The constant wind cooled the person so rapidly, that they sank from the effects of cold, without being frozen. If the buds escape death from severe cold, we are not sure of a crop of fruit. The critical period of blossoming must be passed before we can feel safe, and it is well known that long-continued rains and violent wind storms can seriously affect the fertilization of the flowers and the setting of the fruit. At this time a long cold wind has a most untoward effect, and it is then that the shelter is of great use. If our friend will leave extremely low temperatures out of the question, and observe protected and unprotected orchards without reference to exceptional winters, he may modify his views. At all events we can point him out places where fruit-trees have not only been benefited by shelter belts, but where their existence was actually impossible until the tree belts were planted.

The Matthews Apple.

BY DR. J. STAYMAN, LEAVENWORTH, KANSAS.

This is an apple of great promise, being very beautiful and perfect.

It originated in Nelson Co., Virginia, on the farm of Mr. Matthews, and was first introduced to the public by Tyree Dollins, of Albemarle Co., Va., from whom we received specimens at the meeting of the American Pomological Society at Richmond, Va., September last.

Tree a stout, upright grower, with light-colored bark.

Fruit medium to average; weight from 6 to 10 ounces; form round, slightly conic; skin smooth, rich waxen yellow; dots, large, scattered, whitish or gray; stem medium, slender; cavity wide, deep, green; eye small, closed; basin rather narrow and shallow, furrowed; core large, round, open; carpels large, hollow; seeds medium, ovate, plump, dark; flesh yellowish, very tender, juicy, pleasant sub-acid; quality good to very good; season October to February. (See outline on page 184.)

Raising Garden Seeds—Carrots.

With the multiplicity of books upon gardening, we have had none that gave any satisfactory directions for growing seeds. This gap in our horticultural literature is now well filled by Mr. Francis Brill's "Farm-Gardening and Seed-Growing," just issued by Orange Judd & Company. To give a specimen of the work as well as to answer several inquiries about carrot seed, we quote what Mr. Brill says upon raising it. Presuming that at the digging in the fall, a selection has been made of the finest roots for the purpose of growing seed, and that these have been successfully wintered in a pit or cellar, the work to be done this spring is thus described by Mr. Brill:

"The seed does best in a rather strong loam, moderately rich. After plowing and harrowing, make rows three feet apart with the marker, along which with a crowbar make holes eighteen inches apart; place the roots therein, the crowns level with the surface, fastening the earth firmly against them with a dibble. They should be set out about the middle of April or as soon as all danger of severe freezing is past.

"The after-culture is the same as for beets, except that ridging is unnecessary. Planting every fifth row with potatoes will facilitate the gathering of the seed. The seeds are produced in heads or clusters at the extremities of the branches, and ripen unevenly, hence they require repeated cuttings. When ripe, which may be known by the seed changing to a brown color and the branches commencing to dry, the heads must be cut with shears, gathered into a barrel, carried to the loft, and spread over the floor. When the crop has all been gathered and the whole become thoroughly dry, the heads can be removed to the thrashing floor, and thrashed with a flail, only hard enough to separate the seed from the small sticks which support them, and avoid as much as possible breaking these sticks, in order to make the cleaning more easy. When thrashed, separate the coarser sticks from the seed with a No. 4, and again with a No. 6 sieve, rubbing the larger seeds through with the hand; place the seed thinly on a large cloth, exposed to the sun, and after it has lain so for five or six hours, set a barrel in the center; on this place a No. 8 sieve, through which pass the seed by rubbing with the hand, throwing out the sticks as they accumulate in the sieve. Repeat this operation the following day, this time using No. 10 sieve, which will remove the furze or beard, when it may be finally cleaned by passing twice through the fan-mill, and finished by No. 24 sieve. But a very few years ago it was believed that the removal of the furze injured the seed, and it was carefully picked out by hand, but experience has proved to the contrary, and now not a pound of seed is sold in any seed-store in this country but that which is rubbed clean, in which condition it is more easily handled and can be more easily and evenly sown."

Notes from the Pines.

In the natural course of events I should have been able to report progress, but now the first week of April has gone, and we are about where we were the first week in December. What a winter the past has been! and what a spring this is!! Winter shut down so suddenly, that my next neighbor had a large share of his potatoes and cabbages frozen fast in the field, with never a thaw to loosen them until April. I was so fortunate as to get everything up in time except a single row of cabbages. For the past week thawing has gone on during the day, making the soil too soft to tread upon, and each night it has frozen hard enough to form a firm crust.

CONIFEROUS EVERGREENS have had a most trying time of it. I shall lose a large number of rare species. Some sorts ordinarily hardy now present a sad array of dead and whitening leaves. It is too early yet to know the precise extent of the damage. All those evergreens which have passed the winter unscathed may be set down as perfectly hardy.

THE GOLDEN YEW.—I have before said a word in favor of this tree, and this spring I am more than ever impressed with its merits. It not only has shown no signs of winter-killing, but with the first bright days the tips of its branches begin to turn yellow, and give promise of that golden glow which shall shortly make this a conspicuous object upon the lawn.

BROAD-LEAVED EVERGREENS.—If the conifers have fared badly, it has gone much worse with the broad-leaved evergreens. The evergreen barberries, Mahonias as they are called, show no signs of life. Their leaves are of the color of sole-leather, and appear to be past resuscitation. But the rhododendrons! These all through the winter have been interesting objects, as their leaves have served as rude indicators of the temperature. In extreme cold weather the leaves would curl into a roll and hang pendent by their stalks. When the weather was less severe, they would assume a more or less horizontal position, and when there was any approach to mildness the leaves would uncurl and assume nearly their summer appearance. During the winter we daily watched these changes

as we passed the clump on going to and returning from the city. But those fatal days of March! No matter about the date, but it was when plants froze in a room where there was a fire. This finished them, and the browned leaves hang in mournful helplessness. I fear that the flower-buds are killed also. Still, a rhododendron is hard to kill, and I shall not give up until I find them dead to the root.

BULBS.—It seems strange to have no Bulbocodiums, Snow-drops, nor Crocuses in the first week in April. I have had the beds uncovered, and found that underneath the leaves the plants had just poked their noses above the surface, but when the soil freezes hard every night we can not expect that the flowers will unfold.

COVERED THINGS.—The past winter has shown the great benefit of a slight covering of marsh hay or litter. Spinach and the like that was covered is bright and ready to grow, while a few things that were overlooked are frozen to the very heart. It may look like a small economy to rake up the leaves in autumn and put them over the beds, but we do not know of anything that pays better.

HERBACEOUS PERENNIALS.—I have a very large bed of these, but did not cover it. The soil is too soft yet to walk upon, but from the paths I can see that some things have fared badly. It pleased me greatly to see that the most beautiful—I had almost said of herbaceous plants, and I will say—of all Columbines, *Aquilegia cærulia*, was one of the first things to show signs of life. I think that the first notice, I am sure that the first engraving of this charming plant in this country was published in the Horticultural Annual for 1867. If I can make this plant as popular as it deserves to be, and make people feel that no garden, not even the smallest, is "complete without it," I shall feel that I have done something to benefit floriculture.

TRIAL THINGS.—As spring comes on, or rather as time progresses, new seeds and the like come in for trial. It is very interesting work, this testing of novelties, but horribly time-consuming. The whole work from planting to testing the product requires personal attention, and can not well be delegated. There are very few men who can take ten varieties of potatoes, and give you at the end of the season the returns from each variety separate. Somehow they will get mixed, the labels will get knocked over, or something will happen, to make the experiments valueless. Thorburn & Co. have sent that remarkable collection of Laxton's new peas, which came out from England this year. The trial packet contains five varieties of less than a hundred peas each, and sells for five dollars. If I get a single pod as large as the one figured on the packet as "Laxton's Superlative, average size," I shall sing *pea*culiar *pæans* to Thorburn and Laxton, and wish them great *pea*cuniary reward. Dreer has sent beans, warranted to be of the snappiest sort. Henderson & Co. put me under obligation to *try* more new tomatoes, when I thought the Trophy indicated the end of the fight. R. H. Allen & Co., among other seeds, wish me to see what I can get out of—goodness gracious—a yellow-fleshed watermelon. Can a watermelon be good if it is not of the richest crimson? We'll see. Then Bliss & Sons have new revelations in the potato line, and Richardson & Gould send

COLOCASIA ESCULENTA, or CALADIUM ESCULENTUM, as some have it. These bulbs or rather tubers are so much out of the usual way, that they deserve a separate paragraph. Such bulbs! We think ourselves lucky if our home-grown ones are as large as a turkey's egg, but these are as big as cocoanuts, which, as they came from South Carolina, shows what climate will do. We have not reached the end of the sweet-corn business, for here comes Nicholas Cole, of Pella, Iowa, with "General Grant" sweet corn, claimed to be "larger and sweeter" than any other. But I can not take space to enumerate all, and results of things tried will be of more interest than a list of things to be tried.

How many Strawberries to the Acre?

BY "NOVICE," ATHENS, TENN.

The yield of strawberries is a subject concerning which I am much in doubt. Of experience I have but little other than prospective, and the authorities within my reach "agree not together."

What is a reasonable yield per acre? All the evidence I can find is the following:

Andrew S. Fuller in his Strawberry Culturist says: "An acre of the best varieties of strawberries, properly cultivated on ordinary sandy loam, will in four years produce something like the following results: Three crops of 300 bushels each, 900 bushels," etc.

From the catalogue of Wm. Parry, of Cinnaminson, N. J., I quote as follows: "We have grown on one third of an acre seventy bushels of strawberries, which was at the rate of two hundred and ten bushels or 6,720 quarts per acre, . . . and the premium crop of this country was at the rate of 263 bushels."

From a paper read before the Farmers' Club by Henry T. Williams I also quote: "On the light lands south of us the average number of quarts per acre is about one thousand. Very few fields average over 1,500."

This certainly is diversity, but I can not see the unity. Are these gentlemen correct in their statements? Mr. Fuller's imaginary results are 30 per cent greater than Mr. Parry's best actual results, and nearly 15 per cent better than the best known results as recorded by Mr. Parry—viz., "the premium crop of this country." And Mr. Williams's statement of the average yield of a large berry-growing district is only about one tenth of Mr. Fuller's imaginary crop, viz., 30¾ bushels; while "very few fields average over" about one sixth of the same, viz., 47 bushels.

With this evidence before me, I can not well guess what a novice, with average common-sense and a disposition to do everything in the best possible manner, may expect as the result of his labors in the cultivation of strawberries.

REMARKS.—"Novice" does not seem to have taken into consideration the facts that there is great difference in the productiveness of different varieties of strawberries, and that the same variety may be very fruitful in one soil and climate and worthless in another. We have no doubt that all three of the gentlemen quoted are right. Mr. Fuller's estimate was probably made from the yield in the grounds he then occupied, a naturally strong soil in high cultivation; Mr. Parry shows what can be done in the light warm soils of Southern New Jersey; while Mr. Williams probably tells what he has seen in Delaware, where strawberry culture on the large scale is yet a new thing. Belmont, near Boston, is a great strawberry-growing place, and there from four to five thousand quarts to the acre is considered a fair average crop, but this is obtained with varieties which would probably not grow at all with our Tennessee friend. Fruit culture of all kinds is a matter of local experience, and one in which large sums have been lost by a premature counting of chickens. If "Novice" has no near fruit-growing neighbor by whose experience he can profit, he must learn by experiment what varieties are adapted to his locality, and will give him the best results.

Growing Horseradish.

To answer many letters, we give in brief the following directions:

Around the City of New York the gardeners usually grow it as a second crop. The ground is very plentifully manured, and then marked off into rows one foot apart. Every alternate row is then planted with early cabbages, and after the plants are all set out the horseradish sets are planted in the intermediate rows at the distance of eighteen inches apart. If the horseradish starts too soon it is cut off in hoeing the cabbages, which does not injure the horseradish roots in the least. In July the cabbages are harvested and sold, and the ground is left entirely to the horseradish. Such, in short, is the method practiced around New York. As the farmer is supposed to produce only one crop from his land each year, he can manage the crop without so much labor. The soil must be deep, so as to allow the roots to penetrate a foot or more if possible. The sets which are planted consist of the small roots taken from the large ones, and are from four to six inches in length. In order to distinguish the bottom from the top end of the sets, a slanting cut is made across the lower end, while the top is cut off square. When planted upside down they will grow, but the roots are apt to be irregular and branching. These sets are planted in May, in rows two feet apart and eighteen inches between the plants. During the summer it is only necessary to keep the weeds down and the soil loose. Horseradish is not injured by frost, and may remain in the ground until quite late. Just before the ground closes up the roots are dug, and after trimming off the small rootlets for sets for planting the next season, the large roots are either stored in pits in the open ground, or preserved in sand in a cool, dry cellar. The small rootlets are preserved in sand, taking care not to make the layers of roots so large that they will heat.

Lawns and Grass-Plots.

There is no horticultural operation more likely to prove unsatisfactory to the amateur gardener than the making of a lawn. The uncertainty of the seasons, and the unreliable character of much of the seed, are against his success, and if his operations are upon old soil a host of weeds will take possession of the ground before the grass is visible. Perseverance will command success in lawn-making as in other matters, but we wish to advise the novice that establishing a lawn is not so easy as some represent it to be. In view of the difficulties of the case, we advise those who have small plots which they wish to convert into lawns to lay turf wherever it can be obtained of good quality and at not too great an expense. The soil which is to be sodded should be well enriched before the turf is laid, and the job well finished by beating or rolling, so as to bring the grass roots in close contact with the soil. In England a method of grassing lawns is successfully practiced which we have never tried, but which looks as if it might be useful. Sod is cut or broken into pieces three or four inches square and scattered over the surface, seed is then sown in the usual manner, and afterwards the surface is made even by rolling or beating.

Fuchsia Culture.

Whoever first recommended Fuchsias as bedding plants did them great injustice. There are few plants less fitted for the purpose—in our climate at least. They often become miserable-looking objects under our hot sun, refusing to flower, and often losing their foliage. Even where Fuchsias will flourish and bloom, it is a great mistake to use them as bedding plants, as their flowers have their beauty concealed by the foliage and their own pendent position. Fuchsias to be properly appreciated should stand well up, and if they can be placed as high as the level of the eye, or even higher, the better will they show. We advise our readers, instead of planting out the little specimens offered by florists, to give them larger pots, and to continue to grow them in pots or boxes. They grow rapidly, and yield readily to cutting and pinching, so they may be trained in any form that pleases the fancy. The majority of Fuchsias are summer-blooming, and should be kept dormant in a cellar during the winter. They are especially useful plants for the ornamentation of verandas, balconies, and like places. Large, well-grown plants placed at an entrance that is approached by a number of steps produce a fine effect, as here the flowers can be seen from below as one ascends the steps. The engraving represents the variety "Elm City," which, though not new, is one of the best.

DOUBLE FUCHSIA "ELM CITY."

Transplanting Beets and Ruta-Bagas.

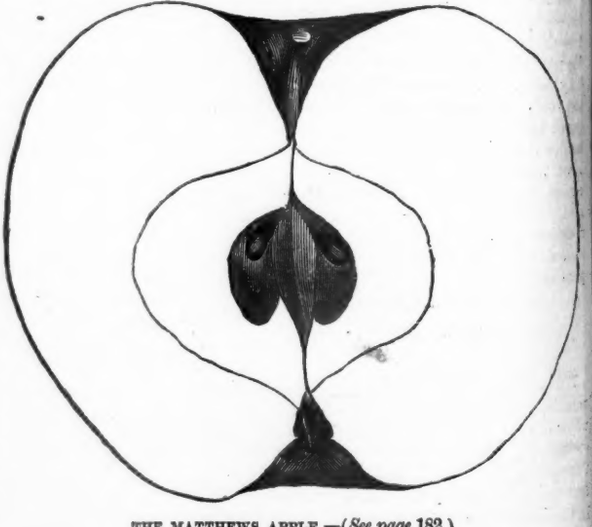
Another year's experience makes us confident that the recommendation to grow mangolds, beets, and ruta-baga turnips by transplanting is worthy of general adoption. The great labor of growing these crops is confined to their care while young. Single plants should be left finally from 12 to 15 inches apart in the row. By the ordinary process, not only these plants but the great number that grow between them, must be carefully weeded and cultivated. By the transplanting process, the plants are grown in a seed-bed, where they are all preserved to repay the cost of their care. The seed is sown early in May, and while these plants are growing to the proper size for transplanting, the harrow is keeping the field free from weeds at a very cheap rate, and the setting out will require less labor and cost less money than would a single one of the three hand-hoeings required in the other system. The transplanting is done late in June or early in July, according to the state of the plants in the seed-bed. As the plants are pulled the tap-root is cut off and the leaves shortened to four or six inches. The engraving shows by cross-lines how the plants are prepared for setting. The planting is done by means of a dibble. Furthermore, the plant is benefited rather than injured by being removed and trimmed, all the imperfectly developed plants are rejected, and the final result will be a much better crop than can be grown in any other way.

BEET FOR TRANSPLANTING.

Expert Garden Workmen.

BY PETER HENDERSON.

In my long experience with workmen I have observed that, other things being equal, the man who could move his hands quickest, was almost certain to be the man most successful in life. Rapid movement of the hands in such light operations as writing or type-setting argue quick mental decision, and if such a mind is well balanced, its possessor is more likely to distinguish himself than he who moves more sluggishly. Now, two thirds of all garden operations—particularly those of flower-gardening—are as light as either writing or type-setting, and for many years I have taken great pains to stimulate my workmen to rapidity of movement in all our light work, and it is astonishing what the gain in labor has been in this particular. For example, the average work of a man planting cabbage or lettuce plants, when we began market-gardening, did not exceed 2,000 a day; now, and for many years past, a man, with a boy to drop the plants, will set 6,000 a day, and one of my old foremen, Jehu Scarry, now gardener to Dr. Thos. Vail, of Troy, N. Y., has repeatedly planted 10,000 in a day. And John Rielly, mention of whose wonderful success as a market-gardener has been before made in these columns, can tie up 1,200 bunches of celery in a day, while the average workman scarcely reaches 400. In the lighter work of our greenhouses rapid movement is even of more importance, and the rivalry among our workmen for distinction in this matter is of great benefit to themselves as well as to us. The acknowledged champion, at present, of our whole force of forty men is a young Irishman, named James Markey. Jim, though not yet 25, has been with me a dozen years or more, and from the first has distinguished himself for doing all light operations quicker and better than any boy of his years, and probably to-day can make more cuttings, or pot more plants, in the same space of time, than any other man in America. It is very good average work for one man to pot off in $2^1/_2$-inch pots 2,000 cuttings in ten hours. Jim potted off one day of ten hours, this spring, 7,000, while his average work of this kind is 5,000 a day. Of course, such ability commands its price, and Jim is paid quite twice that of most of his fellows, and is much valued by me as an example well worthy of imitation.



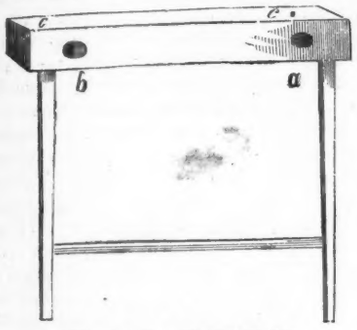
THE MATTHEWS APPLE.—(*See page* 182.)

THE HOUSEHOLD.

☞ (*For other Household Items, see "Basket" pages.*)

Support for a Quilting-Frame.

In February we gave a simple device for supporting a quilting-frame, and this has reminded "A. K.," of Tullahoma, Tenn., of another. The engraving shows one of the two supports required. It is made of any light wood, three feet wide and four feet high. The poles to which the quilt is attached are round, seven feet long, or the desired length. In the cross-bars of the support, holes (*a*, *b*) are bored to receive the ends of these poles, which are inserted in them. Gimlet-holes are made at *c*,



SUPPORT FOR QUILTING-FRAME.

down through the support and into the poles. The quilt is fastened to the poles in the usual manner, and rolled up upon one of them, except so much as is required to allow the ends of the poles to go into their places in the supports. The quilt as the work progresses can be readily rolled from one pole upon the other, and by boring a few holes in the ends of the poles at *a*, *b*, it may be stretched and held in place by the insertion of wooden pegs or nails.

Hints for the Household.

BY MRS. N. W.

Washing.—Housekeepers will find it a great convenience to have *two* wash-boilers on washing day, one for re-heating the suds, while the other and larger one contains the boiled clothes. It is as handy as plenty of flat-irons on ironing day. Let the readers of the *Agriculturist* try it and see.

Potatoes.—Always add salt to the water while potatoes are boiling; boil moderately, not violently, and let them be only well covered with water.

Buckwheat Cakes.—Never make buckwheat cakes of buckwheat alone; make one part of corn-meal, two of wheat-flour, and three parts of buckwheat. They are then spongy, instead of being *flabby*.

Bread-Making.—In making bread always use potatoes or nice corn-meal. I do not feel as though I were doing the correct thing if I use only flour. The corn-meal need not be made into mush; scald it first in the mixing pan before adding the flour, then set in the usual manner. The most prejudiced person can not detect by the taste any corn in the bread, but there is an increased sweetness, and it keeps moist much longer. Of course, the best corn-meal must be used, not that rank chicken-feed kind. Besides the improvement in the bread, the flour-barrel holds out *much* longer, and health is promoted. I put about one part of corn to three parts of flour, when setting the sponge.

Odds and Ends.

We now and then look through the stock of our neighbor, W. H. Baldwin, No. 38 Murray st., to see what new devices are offered to facilitate household operations. There seem to be but few novelties this spring, but then there are scores of old things that are not generally known, but are most useful. In the time of spring cleaning and moving, carpets are to be taken up and put down again. The proper putting down is much facilitated by a carpet-stretcher. In cities, those who make a business of putting down carpets, would as soon think of going to a job without a hammer, as without a stretcher. *A stretcher* (fig. 1) is a blade of steel, about five inches long, with blunt teeth like saw-teeth. By means of a socket it is attached to a handle of convenient length. In use the teeth are pushed into the carpet several inches from the edge, and the carpet is stretched by a pushing motion, and held in place until the edge is tacked. One person can stretch while another tacks, or the handle of the stretcher may have a broad end and be held against the shoulder of the one who tacks. An implement to answer equally well with the one here figured may be made from an old saw-plate, screwed to a properly-shaped wooden handle. A carpet looks better and wears longer when properly stretched.

Fig. 1.—STRETCHER.

The Potato-Muddler, shown in fig. 2, is made of galvanized iron. Being heavier than the ordinary wooden one, it is claimed to do better execution.

Back-saving Dust-Pan. Some one has got out a "Patent Back-Saver," which consists of a dust-pan with high sides and a long handle, as shown in fig. 3. By resting the handle against a table or other piece of furniture, the dust may be swept into it, without the sweeper being obliged to stoop.

Home Topics.

BY FAITH ROCHESTER.

WHAT SHALL I GET FOR DINNER?—This question sometimes haunts me all the forenoon, until the moment arrives when it must be answered without delay. So long as it is an unsettled question, it interferes with any permanent peace of mind.

"Why not settle it at once, and have done with it?" asks Paterfamilias.

"Sure enough!" I answer. "Well, what would *you* like for dinner to-day?"

"Oh! most anything good to eat," he says. But when I press for more definite suggestions, I am asked, "What have you got in the house?"

A most sensible question. It is surprising to find how large the list is, even when we seem to be "out" of many things we like to keep on hand. I must write out a list again, as I have sometimes done before. A glance at this, once or twice a day, will help much toward that refreshing variety in our meals that I so much believe in. It jogs one's memory about putting asoak over night mackerel and such things as are seldom cooked because we forget to prepare them until it is too late.

One should always have on hand a variety of flour and meal—corn-meal, Graham, fine flour, cracked wheat (or wheaten grits), hominy, oat-meal, buckwheat flour. Then there are the various starch preparations. Two or three kinds should be kept in the house—rice, corn-starch, tapioca, sago, arrow-root, farina, Irish moss, etc. Of vegetables there should be plenty, and a large variety, and this is the proper time of year to look after that matter. The kitchen or vegetable garden greatly concerns the housekeeper's interests, and should be thought of in season. In May it ought to be yielding, as a result of last year's forethought, spinach, early beet tops, asparagus, parsnips, salsify (these last two out of the ground and in the cellar before they begin to sprout, of course), lettuce, radishes, horseradish. If proper care has been taken, we have still on hand potatoes, turnips, onions, carrots, cabbage, beans, dried sweet corn.

Fig. 2.—MUDDLER.

Fruit, *of course*, every day, and at nearly every meal, in some shape. Canned tomatoes should come in very often. With plenty of good milk and eggs, in addition to the above-named articles of diet, how bountifully we may live!

Concerning meats I will say little, knowing how much depends upon one's nearness to a good market, and not caring to say a single word in favor of the eternal and abominable pork that is such a staple in most farmers' families. Fish, poultry, and dried beef have their place, and may be prepared in various ways.

It is well to make out a list, each season, of the kinds of food available and suitable for that season. A weekly programme for the season, in addition to this, would simplify matters a good deal sometimes, especially where one has a good servant who likes to work without asking questions. It is not necessary to fill out the programme entirely, but there are some things we could have regularly once or twice a week, on definite days, and we should be almost sure of a better variety in our meals, if we adopted the programme-system. Some persons have this method in regard to the dessert only.

HELP FOR MOTHERS.—Was I going to suggest some helps for mothers who have their "hands and hearts full"? Oh! if mothers could only have a chance to *be* mothers to their children, in a large *human* (as opposed to merely animal) sense! So far in the world's history extremely few women have had the proper culture and the requisite leisure for the highest duties of motherhood. With most of us, the necessary care for our children's physical needs consumes about all our time and strength. Looking at the matter in a general way, it seems a very cruel thing that mothers should be so burdened, as most of them are, with housekeeping and social labors and duties, while their children are young and need a mother's constant vigilance and loving guidance. But when I look at specific cases—my own, for instance—I see that it can not well be helped, in the present condition of human affairs, and we must just do the best we can in the midst of our common difficulties. Good household helpers are scarce in the labor market, and sometimes the family purse is too slender to pay for all the help that is really needed.

Fig. 3.—DUST-PAN.

I suppose there are indolent women enough, sweeping the city pavements with their costly garments, to justify a good deal of the talk we see in the papers about the extravagance and indolence of fashionable women, but farmers' wives generally need to be exhorted to rest more, rather than to do more work. Especially is this true of mothers. Good health is a foundation for that which goes by the name of "good nature." A half-sick woman will usually be irritable. When a loving and well-meaning mother finds herself "cross," she needs to pray for grace and something else—to pray in the most practical manner for plenty of help and plenty of rest—and for good diet and pure air, too.

When children are well the care of them is much easier and pleasanter than when they are nervous and peevish, because of physical disorder. A plain, wholesome diet, with plenty of pure air, bathing enough to keep their bodies clean, and a comfortable degree of warmth—these are the essentials for a child's good health, and consequent good nature.

We want to give our little children such advantages for mental cultivation as their tender years require. Very few of us are within reach of kin-

dergartens, but if we have caught something of the kindergarten spirit, it will be a help to us in any situation as mothers or teachers. To educate by means of play, or to turn a child's pleasures into its discipline—that is the secret. We should encourage our children to do *well* whatever they undertake to do. Slow and careful, rather than quick and careless. We should encourage or awaken in them a desire to know all about the materials they use and see around them.

Country children have a great advantage over city children, during the summer months at least. While quite young, they may become familiar with the names and uses of the trees, shrubs, herbs, birds, beasts, fishes, insects, etc., of their own vicinity. Good illustrated works on scientific subjects may be great helps to mothers. A microscope is much to be desired, especially for use in examining flowers and insects. I mentioned a globe last month.

Of children's playthings I have written before, and nothing new on that subject occurs to me at this time. Pictures are great educators, and care should be exercised in the selection of picture books. Most of the large primers with colored pictures are very poor trash. There are packs of fine cards to be found at most book-stores, representing animals, birds, flowers, and foreign people.

THE DISTRICT SCHOOL.—Whether our children attend this school or not, it is our business (yes, women, *ours*) to look after the interests of the public school—the swarms of little children there are going to rule the country, by and by. Our children, even if they do not belong to their number—as most of them do, no doubt—must associate with them in many ways.

But why do I appeal to such selfish motives? Are not all children "ours," in a large Christian sense? Are we not, each and all, parts of the society which ought to see that a fair chance is provided for every child to get a good education? There is no law to keep women away from the school meetings. Mothers would not be out of their sphere there, and certainly not in the school itself. We ought to make our teachers feel that we are interested and anxious about their performance of the very serious duties intrusted to them. No week of the school session should pass without a visit to the school from some woman in the district. If this were expected and likely to occur at any hour, the effect upon teacher and pupils would be excellent. It would benefit the whole neighborhood. Each one of us should use some influence in favor of genial, well-qualified teachers (with as little change as possible from one session to another) and pleasant, well-ventilated school-rooms, with tasteful and convenient grounds and out-buildings. The teacher should be one among us. A frank association between parents and teachers would be mutually beneficial. None of us have any more important business—no, not priests nor potentates—than the education of little boys and girls into a noble manhood and womanhood. It is business that everybody can engage in, for the little children we have always with us; and all that they see and hear helps to educate them.

GRAHAM BREAD.—One woman wishes to know how to make good Graham bread. It is never made successfully after the usual recipes for bread of fine flour. To all who have thoroughly tried the Graham *gems*, I think that form of Graham bread is most acceptable. The method of making these is very simple. The *essentials* are patty-pans, buttered and well heated, and a *hot* oven. Nothing else but the meal and water. Inexperienced persons will probably make the batter too stiff, and it may take them some time to learn that the gems seem lighter and *sweeter* if made without salt. I am no vegetarian, and use salt daily in my food, but I think it a mere superstition and a gastronomic mistake to put salt into some forms of bread.

Our inquirer may have no patty-pans (the iron clusters are best), or she may wish especially to learn how to make Graham bread with yeast.

In an August number of *Hearth and Home* for 1871, "Mrs. Hammond" gave a recipe, which is the best I have found. She always sifts Graham flour, to make it light, but mixes the bran again thoroughly with the flour. This is an improvement, certainly. For one quart of flour thus prepared, use half a cup of good yeast and a little more than half a pint of warm water. Stir this well together at night, and set in a warm place. In the morning add more flour, but not too much to stir with a spoon—for Graham bread should not be kneaded. Stir it well, pour it into the pan, and let it rise an hour. Some prefer to steam Graham loaves, as well as those of corn-meal, before baking. This prevents the formation of the thick hard crust so dreaded by poor teeth. Many suppose that molasses is essential to good Graham bread, but some of the best cooks do not use it.

A KANSAS MOTHER ANSWERED.—A good letter comes to me from a woman in Kansas, who has four little children under seven years of age. She says, "I have my hands and heart full, and need all the helps in the way of instruction and amusement that I can get. If the Kindergarten gifts are not beyond my limited means, I shall have them sooner or later." She asks me to state in the *Agriculturist* where they can be obtained and what is their cost.

I am unable to give their precise cost. I think $10 would purchase the whole set. Through the agency of a friend I obtained Weibe's Guide, or "Paradise of Childhood," and all the gifts except Nos. 12, 13, 16, 17, 18, and 20, for that sum. The American manufacturer is Milton Bradley, Springfield, Mass., where they can always be found. The express charges from Massachusetts to Kansas would amount to nearly three dollars.

I can not conscientiously *advise* this mother to procure these gifts and attempt to give her little ones the Kindergarten culture. She does indeed need "helps," and I know of no help so great, for mothers and children also, as the Kindergarten. But for the Kindergarten proper, we *must* have qualified gartners (or teachers), and there should be a group of children of the same age. Very few mothers are smart enough and wise enough to use the Kindergarten gifts successfully, without having had especial training for it. I could not, even during the few months after I first obtained them, while I had the care of only one four-year-old child. But I could make *some* use of them, and enough to make me feel more than paid for the trouble and expense they had cost. After grandma and auntie gave back our younger child, it became extremely difficult to use the Kindergarten gifts for *lessons*. The little blocks are very small (cubic inches and their halfs and quarters), and dimpled hands of less than two years' growth were capable of making sad havoc among them, unless there was close watching. Now another "wee one" claims her share of mamma's time and toil, and the Kindergarten gifts are seldom brought into use, except for what the children call "Kindergarten *plays*"—when they build whatever they choose of the blocks or tablets, sitting in high chairs beside the table. The perforating and weaving have given a good deal of pleasure and some good exercise to the eldest child, but he is such a woodsman and farmer now (since his father's business allows him to live with us again), that I am not called upon, as formerly, to provide almost constant employment.

I give my experience to those who care for it. I do believe most heartily in the Kindergarten proper. I think every child would be profited by such a course of training, occupying three hours daily for three or four years. Of late I have sometimes feared that what I have said in its favor may lead some mothers to attempt too much, and thus to lose faith in the Kindergarten itself (the garden of children with a skilled child-gardener). Here, for instance, is one who says she "has tried the Kindergarten and does not think much of it"! I have no idea that she has tried the genuine thing with such result.

I want every earnest person to hear of the Kindergarten, and think about it, and help prepare the way for it, but we can not all reap the direct benefits. Mrs. W. writes, "I hope the day is coming when *every* mother may be able to make her child's care and culture her daily *business*"—quoting from a former article of mine. "O woman! great is thy faith!" But not too great. It *is* coming. You and I would like to *see* it, and it costs a struggle to admit that *our* darlings must fall short of the culture we would gladly give them.

But there is a deal of comfort—to me, at least—in the belief that it will not always be so. We human beings are gradually learning—never so fast as in our day—that *it pays to help each other!*

Another time, I think, I will suggest some "helps" to mothers who have their "hands and hearts full." I have scarcely room for any at present.

Economies in Furniture—Oilcloth.

BY CARRIE CLOVERNOOK.

One of our neighbors sent a set of chair-frames to the cabinetmaker's to be re-seated. The foreman told her he could not promise to do them, as he had plenty of more profitable work, but he would sell the canes for a trifle and could show her in a few minutes how to put them in as well as it would be done in his shop. The chair-frames were sent home, the advice taken, and before night they were almost as good as new. The same lady has an old arm-chair, with a splint seat, or rather that had one when it was new, and she said if she could fix that, she would be quite happy. I suggested that a piece of strong canvas, firmly hemmed on all its edges, could be used. It should be large enough to wrap about the rounds that once held the splints, then should be sewed with twine, putting the needle through the edge—the hem will prevent pulling or tearing—and also through the canvas above the round, inclosing it tightly. This will make a firm seat, and a cushion can be added, if desired. It is a pity to have such chairs disabled, for all the family enjoy them, and if thrown aside, the old people miss them sadly. I have seen rocking chairs made prettier than when new, by fastening canvas with small tacks where the canes had been, taking care to have the wood-work hid as little as possible. If a few layers of old quilts sewed together, for stuffing, be added, and the whole covered with rep or Brussels carpeting, the cushion is finished.

An old lady dropped in just at night, with her knitting, and her bit of good news was, that she had a nice piece of oilcloth for her kitchen stove, and it had not cost her a cent. A couple of yards of coarse bagging, such as covers packages of batting, had been given her at the store, and a few strokes of Sam's hammer fastened it securely to the side of the barn. It was first brushed over with thin rye-paste; when this was thoroughly dry, it was given a coat of dark-brown paint, and when this was well dried, another coat was added. When these had hardened, the edges were trimmed and bound with narrow strips of tin. It was pronounced a success. As the materials for painting were in the house, she enjoyed telling to her friends how comfortable an article she had made without expense. I have often seen in print directions for making oilcloth, but never have noticed any which advised a coating of paste first, but my friend said that she was taught by one who had followed oilcloth making, and that it was a great improvement.

MOVING MARBLES AND MIRRORS.—In packing mirrors or marble for removal, they should be placed by themselves in a box, and fixed in their places by side-pieces and wedges, driven closely, and nailed; laths should be placed across mirrors, and no elastic materials, as pillows or feather-beds, be used in packing them. Marble should be put in a box by itself, wetted sheets of clean paper laid between the pieces, and each piece held firmly in its place by side-pieces and wedges. It may then be carried over a rough road in a wagon, without injury. Glass and china ware should be packed upon the same principle—that is, they should be so firmly fixed that it will be impossible for them to move and jar against one another. The way the packing material is crowded in, to make the whole firm, is of much more consequence than its quality or quantity. Newspapers, soft straw, or hay may be used; but, whatever the material may be, have every crevice filled, and all well packed.

BOYS & GIRLS' COLUMNS.

The Boys and Girls' Pictures—More Prizes Offered.

When one has made a mistake, he should acknowledge it. I admit that I made a blunder about the boys and girls' pictures. I said that the time during which the stories could be received would be up May 1st. As the paper for May goes to press about the fifteenth of April you will see that I can not announce the awards until next month. I am very sorry for it, but I really intended to put it so that they could appear in this number. Let us have patience. There is such a quantity of letters, and they keep coming every day, that it will be a fine task to read them all.

Now, while we are waiting, let us be doing something. We wish to have another competition in progress, and what shall it be? I have it. Girls first. I wish from the girls a list of the flowers they have seen during the month of May. From the girls in the country I shall expect lists of wild-flowers. Those who live in towns and villages may, if they prefer it, put down cultivated flowers, but wild and garden flowers must not go upon the same list. Choose whether you will hunt up the wild ones, or prefer to name those that grow in your own and other people's gardens. Use the common or botanical names, as you prefer. In making up the awards not only will numbers be considered, but accuracy in spelling. It is understood that the list is to contain only the flowers that the writer has seen. Mind, it must include only plants that are actually seen *in flower*.

Now for the boys. Boys do not generally care much for flowers, I am sorry to say, and I must set them at some livelier work. Young gentlemen, we will have from you a list of all the native wild animals you have seen during the month of May, exclusive of insects. Birds, quadrupeds, snakes, lizards, etc., may come in, but no "*bugs*." This gives the country boys a great advantage over town-dwellers, and we must allow those who live in cities and towns to take their choice, and if they can not go often into the country to see the wild birds and quadrupeds, they must make lists of domesticated ones. As these lists will be very much smaller than the others, if a boy chooses to put down the tame animals only, he must then tell what country they originally came from.

Now, boys and girls, the object of this is to induce you to use your eyes and your tongues. If you do not know the name of a plant, a bird, or other object you wish to include in your list, ask some one who does. Try and get the right name, and then to write it down correctly. Recollect that these observations are to be continued during the month of May, and the lists must reach me by the fifteenth of June. The prizes for these will be books—good, new, and useful ones. The publishers are very liberal in such matters, and I shall give at least six books among the boys, and as many among the girls, making due allowance for ages. Now look at the offer for the prizes in March. The same conditions about writing, giving name and age, etc., mentioned there, will be observed now. In the story prizes, those with the liveliest imaginations had the best chance, but now the matter-of-fact youngsters, who go about with their eyes open, have something suited to their tastes. So, girls, start after the flowers, and, boys, "stir up the animals," and when you have found out all that the month of May can tell you, do you tell it to THE DOCTOR.

Addresses Wanted.—Letters sent by "The Doctor" to Miss Mary Ross, Iowa, and Edmund D. Redd, Va., have been returned from the post-office. His letters were directed according to the addresses given by them. Some mistake, children.

A Boys and Girls' Bird-House.

We call it a boys and girls' bird-house, because any boy with ingenuity can make it for his sister, or the two can own it in common. The drawings were sent by J. L. Hyde, Pomfret Landing, Ct., and there was nothing to show whether Mr. J. L. H. is one of our boys, or one who was a boy once. At all events, we are much obliged for his bird-house, and will tell you how he makes it. The foundation of the house is any convenient-sized box, such as may be had at the stores. A piece is nailed to each end, cut to the slope it is desired to have the roof. As the roof is to be thatched, it had better be pretty steep, as it will not only shed the rain the more easily, but the house will look better. The upper end of the pole which is to support the house is made square; it passes through a hole in the bottom of the box, and extends far enough above the ridge of the roof, to form the chimney. A ridge-pole is then passed through the upright pole and the end-pieces, as shown in figure 1. Places for the windows are to be cut out, but the door may be only a dummy, and painted black. Birds are not very particular how they enter the house, and will go through a window just as well as a door. As we wish the house to have a pleasing appearance, we must cover it so as to represent a log-cabin. For this purpose small branches of any straight, easy-splitting wood are to be cut of the proper lengths, and split lengthwise, as in figure 2. These, with the bark on, are then to be fastened by small nails all over the ex-

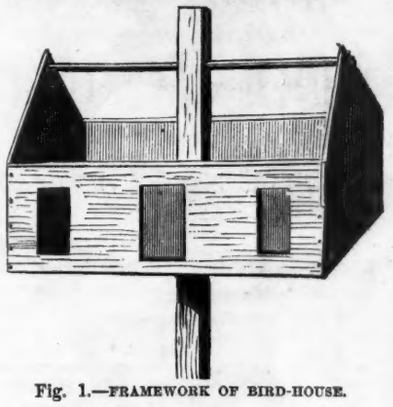


Fig. 1.—FRAMEWORK OF BIRD-HOUSE.

terior of the house, as shown in figure 3. The roof is then to be thatched, and though Mr. H. draws it as done, he does not tell how to do it. We should tie the straw into small bundles with twine (tarred would be best), making them long enough to reach from one side of the house to the other, and to project well over to form the eaves. Then we should nail the bundles, one by one, to the upper edges of the box, and bind them at the top to the ridge-pole, by means of twine. The bundles must be crowded up close to one another, to prevent leaking. If this way of putting on the straw does not work, you can no doubt hit upon some other that will. The house may be divided up to accommodate several families. The lower

Fig. 3.—BIRD-HOUSE COMPLETE.

story may be so partitioned as to form four rooms, with an entrance-window to each, and the garret can have a division across it, and make two rooms, which can be entered by windows in the gable ends. The appearance of the house will be much improved, and it will stand the weather better, if the wood has a coating of painter's oil. Birds will like a house of this kind better than they will the showy-painted things that are often provided for them. When the house is in place, you can put "To Let" on it, if you choose, but the birds will come just as soon without it, and it is very amusing to see the little things out house-hunting. The enjoyment of a bird-house may be much increased, if you put in some quiet place near by a plenty of such materials as the birds use in making their nests; cut hay, locks of wool, old curled hair, shreds and ravelings of cloth, feathers, and the like, will all be acceptable. We had nearly forgotten one thing. The whole affair may be made much more ornamental by setting some climbing plants at the bottom of the pole. A hop-vine will grow very quickly, and make a fine mass of green. If strong strings or wires are attached near the top of the post, and their other ends fastened to pegs driven into the ground, you can plant morning-glory seeds, and soon have a fine pyramid of vines, which in the early morning will be covered with flowers.

Fig. 2.—SPLIT STICK.

Aunt Sue's Puzzle-Box.

CROSS-WORD ENIGMA.

My first is in want but not in need.
My next is in oats but not in feed.
My third is in snow but not in rain.
My fourth is in wheat but not in grain.
My fifth is in pink but not in black.
My sixth is in nail but not in tack.
My seventh is in good but not in nice.
My eighth is in rats but not in mice.
My ninth is in corn but not in rice.
My tenth is in once but not in twice.
My whole is a man well known to fame,
And a city, too; now tell the name.

ELLA E. FARGO.

DIAMOND CROSS-PUZZLE.

1. A vowel. 2. Time past. 3. Something lean and thin. 4. Not assisted. 5. Having power to reduce. 6. Delightful. 7. A husbandman. 8. An appeaser. 9. Serving to introduce. 10. To support by food. 11. Indian corn. 12. To request. 13. A consonant.

The central letters, horizontal and perpendicular, name an admirable production. R. T. ISBESTER.

PI.

Raley ot edb dan alrye ot sire
Liwl keam a nam hayleth wayleth dna wesi.

SNICKER.

SQUARE WORDS.

1. [1] Perform. [2] Black. [3] Repeat. [4] Murder. [5] Music.
2. Square the word "CROWD."

STAR AND CRESCENT.

PUZZLE.

Take the names of two kings and half of another (all mentioned in the Bible), and transpose the letters into the name of a water-fowl. F. W. HALL.

DECAPITATIONS.

1. Behead a boy's name, and leave a vessel.
2. Behead a boy's name, and leave part of the body.
3. Behead a girl's name, and leave a boy's.
4. Behead a girl's name, and leave a tribe.
5. Behead a bird, and leave a measure.
6. Behead something good to eat, and leave the boy who might eat it. H. H.

GEOGRAPHICAL ANAGRAMS.

1. Laity.
2. Planes.
3. The scorer.
4. Males.
5. By revel.
6. Rent not.
7. Worn key.
8. Sob not.

HARRY.

NUMERICAL ENIGMA.

I am composed of 11 letters.
My 3, 8, 1, 5, is a kind of trimming.
My 7, 10, 11, 9 is a despicable character.
My 4, 6, 9, 2, 3, is a marine production.
My whole is the name of a flower. C. L. S.

ANSWERS TO PUZZLES IN THE MARCH NUMBER.

NUMERICAL ENIGMAS.—1. Contentment is a gem beyond a diadem. 2. Something nice to work.

BLANKS.—3. Ate, eight. 4. Hugh, hew. 5. Idle, idol. 6. Colonel, kernel.

ALPHABETICAL ARITHMETIC.

342)86953(254 (Key. "New codfish.")

ANAGRAMS.—8. Restaurant. 9. Euphemism. 10. Agriculturist. 11. Impatience. 12. Pertained. 13. Grenadier. 14. Disparagement. 15. Satisfied. 16. Continual. 17. Inconsiderable.

CROSS-WORD.—Hattie.

PI.— What's the use of always fretting
At the trials we shall find,
Ever strewn along our pathway?
Look ahead, and never mind.

SQUARE WORD.

S O A K
O N C E
A C R E
K E E P

BIG BOYS AND GIRLS NEED NOT READ THIS.

WILLIE H. K. says, "I wish I knew how to make out those numerical enigmas." Why, bless your dear little heart! come and sit down by me, and I will tell you all about it. First I will make an easy one for you:

I am composed of 17 letters:
My 11, 2, 13, is yourself.
My 5, 3, 8, 4, is what you like to read.
My 6, 16, 9, is what you hear with.

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THE WHISTLE-MAKERS.—*Drawn and Engraved for the American Agriculturist.*

My 17, 12, 14, 10, is a long stick.

My 1, 15, 16, 7, grows on trees and plants.

My whole is a proverb.

There: get your slate and pencil, and write down 17 figures across, in a row. Now, "my 11, 2, 13, is yourself," that must be "you;" so put down y, under 11; o, under 2; and u, under 13. Now, what do you "like to read"? "Robinson Crusoe." Yes, but we only want four letters; I guess it is "book," so put those letters down under 5, 3, 8, and 4. You know "what you hear with." What "grows on trees and plants"? "Fruit?" Yes, but we only want four letters: try something else. Now I shall leave you to find out the rest, and you must write and tell me how you succeeded.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

J. P. Let me first see how you will "square BABALOU" yourself.

W. J. D. Where do you find "AIDE"?

J. T. McA. You sent no answers with your puzzles.

ANNA BELLE C. Thanks for your nice little letter, especially for the lock of hair. What possible good could it do you to know what my "last name" is? Would you be any happier, if you knew "for certain" that it was Brown, or Jones, or Snooks? Yes, "any one may answer puzzles."

MAY A. W. Of course, you "may make up puzzles for the *Agriculturist*," and if they are good ones they shall be published.

GILBERT A. S. I am sorry that you can not forget *little unpleasantnesses*. My Southern nieces and nephews are just as dear to me as the Northern ones, perhaps a little dearer, on the principle of the misguided lambkin that strayed away from the ninety and nine. You may remember how glad the folks were to welcome it home again.

Glad to hear from A. M. Rice, Alice C. Taylor, Belle R., C. W. J., M. H. E., Jessie D., Anna H., Geo. V. R., Jere P., A. B. Leach, S. G. T., and C. W. W.

Thanks for puzzles, etc., to R. T. Isbester, J. E. M., A. S. H., W. H. K., E. S. C., O. A. Gage, and W. E. W.

The Whistle-Makers.

We are sorry for the man who can not look back upon a scene similar to the one represented in the engraving, and remember it as one of the happiest of his life. It may be that there are some of our readers who have always lived in cities, or who have only gone to the country when mid-summer made the town too hot for them, who never made whistles. How little do those who only visit the country in mid-summer, know of its beauties! Our country boys and girls—for girls like to have whistles—well know that there is no more delightful season than that in which they make whistles. Boys have ball-time, kite-time, and marble-time, and I do not know why they should not have a whistle-time. There *is* a whistle-time, but I never heard it called by that name. It is only when all vegetation is awakening, when spring proper, not the spring of the almanacs, has really come, that whistles can be made. Willow makes the best whistles, though poplar will do very well, and as willows generally grow by the side of streams, whistle-makers are likely to be led to pleasant spots. I can well recollect the day when Joe, who was always scolding about "them ar young 'uns," and who always did what the "young 'uns" wanted him to do, sharpened our knives, and how Aunt Mary put up our lunch, and we all went off together where, as the Atwell boys said, the willows "grew prime." In those days boys did not say "bully," but "prime" and "bunkum" were the biggest words we knew the use of. It is so long ago! and yet the rippling laugh of the boys and girls and the laughing ripple of the brook ring in my old ears with a freshness that almost startles me. We made our whistles, listened to the birds, looked for the early flowers, and had just such a Saturday as only comes once in a lifetime. What matter if Joe did make that knife so sharp that it cut my fingers, was not E. there to tie it up? and if in my eagerness to make a large whistle it made a sound more like a bull-frog than a bird, did we not all laugh? I could find the very spot now. The brook, the willows, the birds, and the flowers, would all be there—everything, but the young hearts that made the place ever memorable. Of all the half-dozen whose whistles and whose shouts made the time so merry, I can tell you of the whereabouts of but one, and he sits here, renewing the pleasures of his youth in thinking of the many happy whistle-making parties his boys and girls will have in these bright spring days.

Don't suppose I am going to tell you how to make a whistle. In my boy-days the worst thing that could be said of a stupid fellow was, "He don't know enough to make a poplar whistle." I really don't know how boys learn all about these things. The selection of the twig, the shaping of the mouth-piece, then the hammering of the bark, to make it slip off, and the final proper shaping of the wood—I can not recollect how I learned them any more than boys can now tell how they know when top-time comes.

THE DOCTOR.

THE

Smith American Organ Co.

Would announce that in addition to the instruments described in their new

RED-LINE CATALOGUE,

They are about to issue several

New and Beautiful Styles,

In cases of elegant finish, and with some NOVEL AND UNSURPASSED MUSICAL EFFECTS.

One of these is believed to be *the finest toned, most agreeable, and most satisfactory parlor instrument ever offered to the public.*

A descriptive sheet of these new styles, with a specimen engraving, will be sent to agents, music-teachers, and others who are interested in musical art, upon application.

Address

THE SMITH AMERICAN ORGAN CO.,
Boston, Mass.

The value of advertising in a journal depends somewhat on the number of its readers, but still more on their average character. One might have a vast circulation mainly among those whom business men would find little profit in addressing. THE TRIBUNE is not merely bought and read by more persons than almost any other American journal—it circulates in every State and in nearly every township throughout the Union, and its patrons are educators, merchants, professional men, master-workers, and leaders in almost every arena of inspiring and hopeful human endeavor. If it were proper to publish a list of them, it would appear that no other journal does or ever did command the patronage of so large a proportion of the foremost thinkers and workers of its time. For this reason, it affords men in business a means of reaching those whose attention they would gladly attract such as is not found elsewhere; while its wide columns, clearly and fairly printed, invite the regard of intelligent readers.

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☞ Over Fifty Thousand Blanchard Churns are now in successful operation. Pretty good proof that they are liked.

MOWER AND REAPER, combined, Wood's, new, for sale. Address
G. TIMPSON, Box 243, Williamsburgh, N. Y.

HOW to obtain a Cast Cast-Steel Plow for five dollars. For particulars, address
COLLINS & CO., 212 Water st., New York.

MONEY MADE RAPIDLY with Stencil and Key Check Outfits. Catalogues, samples, and full particulars FREE. S. M. SPENCER, Brattleboro, Vt.

ARE YOU GOING TO PAINT?

MORE THAN

100,000 HOUSES

HAVE BEEN PAINTED WITH THE

AVERILL CHEMICAL PAINT

IT IS THE BEST

In the world for exterior work upon Cottages, Villas, or Buildings of any kind, whether built of brick, wood, or iron. It is a liquid, *ready for use*, and requires no oil thinning or drier. Purest white, and any desired shade can be had in packages from one gallon upwards.

Letter Received from Levi Shaw, Trustee of the United Society of Shakers.

MT. LEBANON, N. Y., Sept. 27th, 1871.

RESPECTED FRIENDS: In reply to your inquiry as to what we think of the Averill Chemical Paint, we have used in our Society at Mount Lebanon some 1,000 gallons. We are very much pleased with it, and until we are convinced that there is something better, shall give it the preference of all other paints. We have used heretofore the (——), (——), and most all other brands of white lead, neither of which have given us perfect satisfaction. Most of it would chalk off after being on some two or three years. This, after three years' experience, we do not find to be the case with the Averill Pure White Chemical Paint. Indeed, it appears just as well as when first put on. I will write you again on the subject when I am not in quite so much of a hurry.

Sample card of beautiful colors, and recommendations from owners of the finest residences in the country, furnished free by the

AVERILL CHEMICAL PAINT CO., 32 Burling Slip, New York, or 118 Superior Street, Cleveland, Ohio.
L. HATFIELD, AGENT, 131 Portland Street, Boston, Mass.
CHARLES OSGOOD & CO., Norwich, Ct.
ROBERT SHOEMAKER & CO., N. E. corner 4th and Race Streets, Philadelphia, Pa.
R. & W. H. CATHCART, 113 Thames Street, Baltimore, Md.
LAWRENCE & CO., 52 Main Street, Cincinnati, Ohio.
GEO. W. PITKIN, 120½ Michigan Avenue, Chicago, Ill.
GEO. PARTRIDGE & CO., St. Louis, Mo.
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P. S.—The superiority of these Paints has already brought numerous *worthless* imitations in the market. We caution the public against using them.

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The **Asbestos Roofing** is not a temporary substitute for a Roof but is a substantial and reliable material, which can be safely used in place of tin, slate, etc., on steep or flat roofs in all climates.

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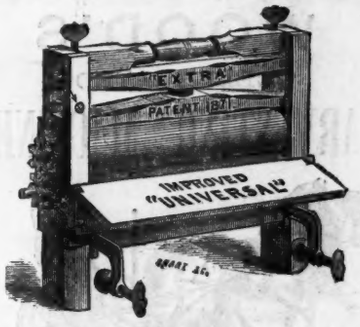
☞ Never get a poor farm implement. Get the best. Get the Blanchard Churn.



Why the Universal is Superior to all other Wringers.

It has ROWELL'S PATENT DOUBLE COGS, with longer teeth, which play apart further without disconnecting, never crowd together so as to bind, and turn easier than any other cogs.

It has the PATENT STOP, which keeps the Cogs from disconnecting, yet allows the rolls to play apart far enough to wring the largest articles easily.

It has the MALLEABLE IRON FOLDING CLAMP, which can not be broken, and fastens securely to tubs of any curve, and fits washing machines or stationary tubs of fully two inches in thickness.

It has the FOLDING APRON or Guide, to conduct the clothes safely over the side of the tub, free from contact with the clamp or screws.

It has the peculiar advantage of TWO PRESSURE SCREWS, so arranged that each screw presses on both ends of the roll alike, the same as if it was in the center, while the two together *give double the capacity for pressure.*

The RUBBER between the springs makes the machine turn easier and saves the rolls from strain.

The IRON parts are WROUGHT OR MALLEABLE, not liable to break, and well galvanized.

It is very LIGHT and PORTABLE, yet built so substantially, it can not be broken.

WITH ALL THESE ADVANTAGES, its price is no greater than that of any wringer with cogs.

Sold by the House Furnishing and Hardware Trade generally,

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The Oldest, Largest, and Most Perfect Manufactory in the United States.

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Now in use.

No other Musical Instrument ever obtained the same popularity.

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50,000 ROSES.

In small pots.....$100 per 1,000.
" " ..... 12 " 100
" " ..... 2 per dozen.
Without pots..... 90 per 1,000.

These roses are well-rooted plants, of this season's propagation.

They include all the standard varieties of Remontant, Tea, China, and Noisette, and will be deliverable after May 15th.

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The best in the world. Also accurate Thermometers of all kinds. Made by
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THE JONES SCALE WORKS, Binghamton, N. Y.

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CELEBRATED
HARVESTING MACHINES.

Greatly Improved for 1872.

Send for Descriptive Catalogue.

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TWO GOLD MEDALS

AWARDED THIS MACHINE

Harder's Premium Railway Horse Power and Thresher and Cleaner, received,

THE FIRST PRIZE

At Great National Trial, at Auburn, N. Y.

For "*Slow and easy movement of horses, 15 rods less than 1¼ miles per hour, Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, &c.,*" as shown by official Report of Judges. Threshers, Separators, Fanning Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judges Report of Auburn Trial sent free. Address MINARD HARDER, Cobleskill, Schoharie Co., N.Y.

"BEST"

Threshing Machines & Clover Machines.

C. WESTINGHOUSE & CO.,
Circulars sent. **Schenectady, N. Y.**

New York State Agricultural Works,

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PROPRIETORS, PATENTEES, AND MANUFACTURERS OF

RAILWAY CHAIN AND LEVER HORSE POWERS,

Combined Threshers and Winnowers, Overshot Threshers, Clover Hullers, Feed-Cutters, Sawmills, Horse-Rakes, Horse Pitchforks, Shingle Machines, STRAW-PRESERVING RYE THRESHERS, etc. **Albany, N. Y.**

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MOULE'S PATENT.

The simplest and cheapest effective Earth-Closet yet made. Call or send for Circular.

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The *uniform success* of the Clipper Mowers in the field, the testimony of every farmer who has used them, that they are the *lightest in draft*, the *most durable*, and the *most economical* machine for the farmer to buy, fully substantiates what the proprietors have always claimed—that the Clipper is the **Best Mower in the World.**

To the No. 4 size is attached the Dropper (cutting 5½ feet, with *separate Finger-Bar* for reaping), constructed with great improvements—in fact perfected; and in point of efficiency, strength, lightness of draft, and symmetry of proportions, it is, as a Reaper, also unequaled. Farmers! see it before you buy. Pass your own judgment upon it. Look at its many improvements possessed by no other machine. Remember, it is fully warranted. Send for Pamphlet.

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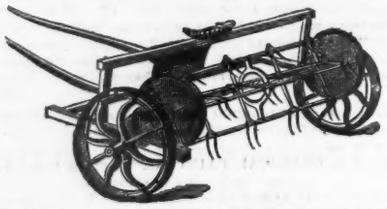
THE

American Hay Tedder.



Enables the most important Agricultural product of America to be cut, cured, and stored in the barn in one day. Improves the quality and increases the value of the hay crop. Prevents all risk of damage from storms and sudden showers. Is simple, durable, and of light draft. Was awarded the New England Agricultural Society's only first prize, at the Great Field Trial, at Amherst, Mass., as being superior to all others, and the best and only perfect machine for tedding or turning hay.

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SEND FOR DESCRIPTIVE CIRCULAR.

Johnston's Self-Raking Reaper

is so well known among grain-growers generally, that it needs no extended heralding in print.

As manufactured by us, it is the only Reaper that will save the entire crop when badly lodged.

We warrant it to cut any grain that grows, and in any condition.

A pair of ordinary horses and a boy to drive it will cut from 10 to 20 acres a day in the most satisfactory manner.

Send for illustrated pamphlet.

C. C. BRADLEY & SON, Syracuse, N. Y.

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Manufacturers, **Syracuse, N. Y.**

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Took the *First Premium* at *Great American Institute Fairs* of 1870 and 1871.

A better *Closet* and *lower price* than any other.

Price, No. 1,	Black Walnut, with arms,	$13.00
" " 2,	" no arms,	11.00
" " 3,	White Wood, paneled,	9.00
" " 4,	" plain,	8.00

Agents wanted. Address
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A VALUABLE Patent in Hay and Cotton Presses for sale—the simplest and best in market. No end to speed and power. Has been thoroughly tested. Sixteen years' monopoly. For cut and circulars, address E. ROCK, Patentee, Greenvale, L. I., N. Y.

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FARMERS, DO YOUR OWN ROOFING.

For 3c. per sq. ft. get a roof that will last fifteen years. Cheap, Light, and **Fire-proof.**

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All shades. Prepared for immediate use, requiring no mixing. Put up in 1, 2, 3, 5, 10, 20, and 40 gallon packages.

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Top-Dress Winter Grain and Grass. — *Best Manure* for Oats, Potatoes, Corn, Roots.

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Its Nitrogen from Blood.

Phosphatic Blood Guano.

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Top-Dress Lawns and Pastures — *Best Manure* for Garden Vegetables, Small Fruits, and Flowers

Each Bag, containing 200 lbs., bears the above Trade-Mark stamp.

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Ammoniated Bone Superphosphate Lime,

The most valuable commercial fertilizer now in use, at a reduced price.

Quality guaranteed equal to any heretofore manufactured. Prof. Samuel W. Johnson, of Yale College, and Chemist for the State of Connecticut, in his report on commercial fertilizers, makes it worth fifteen dollars per ton, in gold, more than any of the sixteen kinds of fertilizers analyzed, most of them superphosphates, as will be seen by reference to his pamphlets.

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Best No. 1 Peruvian Guano. Best Ground Bone. Best Land Plaster. Sold in lots to suit, to either the farmer or dealer, by GRIFFING & CO.,
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You want the Choicest

Ornamental foliage and flowering plants ever offered in this country. See our

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1,000,000 EVERGREENS, 3 inches to 3 feet high. Address L. B. CHAPMAN, Portland, Me., or office, No. 21 Cortlandt street, New York.

EVERGREENS.—Arbor Vitæ, 4 to 6 in., by the 1,000 or 100,000, at only $2 per 1,000.

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ASPARAGUS, $3.50 per 1,000.

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SILL'S, SCULPTURED-SEEDED, and PHINNEY'S.

I introduce these new and very superior Melons as remarkable for earliness, sweetness, and spiciness. Very desirable either for the private garden or the market.

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Having been the original introducer of this famous Squash, I am prepared to supply seed dealers and farmers and gardeners with the purest seed of my own raising.

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Southern Queen Sweet Potato.

Sprouts.—Three years' trial proves it to be the *earliest, most productive, best keeping,* and *best* table potato grown.

$1 per 100, by mail. $4 per 500, by express.

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SWEET POTATO PLANTS.

Nansemond Sweet Potato Plants, 75c. per 100; $5 per 1,000, *Southern Queen Sweet Potato Plants,* $2 per 100; $15 per 1,000. For sale by I. J. SIMONSON, at E. A. Reeves' Seed Store, 58 Cortlandt st., New York City. P. O. Box 2,660.

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NANSEMOND SWEET POTATO PLANTS! $1 for 300; $2.50 for 1,000; $20 for 10,000.

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Will send fifty choice, carefully-selected *Bedding, Basket,* and *Vase* Plants, to any address upon receipt of $5, or

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To those ordering the $5 collection, we will add a plant of the new *Fountain Plant*—Amaranthus Salicifolius.

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We will safely pack and guarantee safe delivery of each package to any point within six days of New York.

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600 Acres. 21st Year. 13 Greenhouses.

10,000 Apple and Crab Rootgrafts, best sorts,	$50
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10,000 Osage Orange Plants, 1st class,	25
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Flower and Vegetable Seeds, large Stock.

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Colored Plates, Fruits, and Flowers, 5 samples by mail, $1. Wholesale Price-List free.

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This is the largest Cabbage in the world; has been grown to weigh sixty pounds.—Packages of seed, with an engraving of this Cabbage, and full instructions for growing, 25c.; per ounce, $1.00. I am the original introducer of this Cabbage, and my seed is pure.

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Winner of Six Gold Medals, Paris and New York, Silver Cups, Medals, and many Hundred Prizes, during the last six years, in the United Kingdom, for Dark Brahmas, Silver Dorkings, Houdans, Creve Cœur, Cochins, Spanish, Game, Rouen and Aylesbury Ducks, Toulouse and Embden Geese. Can supply thoroughbred poultry at prices according to merit, as well as eggs of same. N. B.—Shipments to the United States can now be made direct from Queenstown.

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Safely packed—EGGS—from pure-bred selected fowls. Houdans, Silver-Spangled Hamburghs, and Gold-Laced Sebright Bantams, $3 per doz., or two doz. for $5. Neither of the cocks is related to the hens.

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Last year, several readers of the *American Agriculturist* purchased Essex pigs from me.

So far as I have heard, they have given good satisfaction.

I keep only pure Essex, and breed them with great care.

Last spring, I could not fill all my orders, and, much to my own regret and the loss of the intending purchaser, was obliged to return the money.

This spring I expect to be able to furnish very superior pigs, and shall be glad if those wishing to buy pure Essex from me will order *early*.

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Premium Chester Whites; Berkshire and Essex Pigs.

Bred and for sale by **GEO. B. HICKMAN,** West Chester, Chester Co., Pa.

☞ Send for Circular and Price-list.

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BLACK BASS for stocking ponds.

JERSEY CATTLE, Family cows.

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1 quart. 1 pint. ½ quart.

PRICES:

Delivered at Express Office, Railroad Depot, or on Boat at Rochester. Quart Baskets, $25 per 1,000; Pint Baskets, $20 per 1,000; ½ Quart Baskets, $20. Cost per 1,000 for packing and shipping, $1.50.

Crates for 24 qt. Baskets, each,			$1.40—with 24 Baskets,		$2.00.
"	36 qt.	" "	1.65—with 36 "		2.55.
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"	45 qt.	" "	with 150 Baskets nested in it,		$5.60.
Crates for 45 pt. Baskets, each,			$1.40—with 45 Baskets,		$2.30.
"	60 pt.	" "	1.70—with 60 "		2.90.
"	60 pt.	" "	with 180 Baskets nested in,		$3.30.

Crates for 45 pt. Baskets, will hold 60 ½-quart Baskets.

Order early of

COLLINS, GEDDES & CO.,

General Agents, **Moorestown, N. J.**

THE EXCELSIOR

WITH BENCH,

IS THE

MOST PRACTICAL CLOTHES-WRINGER IN USE.

It is securely attached to a **Bench,** on which comes all the strain in wringing clothes. The Tubs are unincumbered, and are free to be emptied or used for any other purpose. It has our **Patent Flange Cog-Wheels** on **both ends** of the **Rolls,** and a **Tipping Water-Board** for conducting the water on **either side** of the Wringer, as desired.

This Wringer is strong, durable, and will last a life-time.

EVERY HOUSEWIFE SHOULD HAVE ONE.

It will save labor. It will save time. It will save its cost every year.

Sold Everywhere.

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The following collections contain the most showy varieties in our large assortment. Each variety is put up in separate papers, with full directions for culture on each.

Coll. No. 1—contains twenty choice varieties of Annuals. $1.00
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Any one remitting $3.00 will receive the four assortments postage free.

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Coll. No. 6.—One hundred varieties of Annuals, Biennials, and Perennials, including many new and choice varieties. 5.00

Collections of Kitchen-Garden Seeds.

A COMPLETE ASSORTMENT OF VEGETABLE SEEDS FOR ONE YEAR'S SUPPLY, FOR A LARGE OR SMALL GARDEN.

The following Collections are made up in the most liberal manner, care being taken to give a sufficient quantity of all the finest varieties and most useful sorts of Vegetables required in the Kitchen-Garden:

Assortment No. 5 contains 57 varieties, $3.00
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" No. 7 contains 18 varieties, 1.00

The above are prepared expressly for sending *by mail*, and will be sent post-paid upon receipt of prices annexed.

Larger Collections, which can be safely sent by express (freight paid by purchaser), to any part of the country, as follows: No. 1, $20; No. 2, $15; No. 3, $10; No. 4, $5.

For a list of the contents of each Collection see Catalogue.

Asparagus, Conover's Colossal...pkt. 15c. oz. 30c. lb. $3.00
Beans, True Yard Long..... " 25c.
" Giant Wax, fine..... " 25c.
Beet, New Egyptian..... " 15c. " 30c. " 3.00
Carrot, Improved Long Orange,.. " 10c. " 20c. " 1.75
Cauliflower, Half Early Paris..... " 25c. " $1.50
" Erfurt Large Early White.. " 25c. " 3.00
Corn, Moore's Early Concord Sugar, pkt., 25c., per qt., 75c.
" Judson's New Branching Field, pkt., 50c., 5 pkts., $2.
" New Joint Parching, pkt., 25c., five pkts., $1.
Cucumber, Gen. Grant, from 24 to 30 inches long, pkt., 25c.
" Glory of Erfurt, New White, pkt., 25c.
Egg-Plant, Black Pekin, per pkt., 25c.
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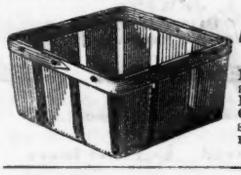

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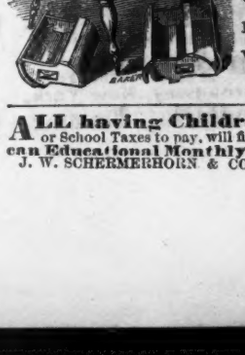

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TO THE GENERAL COMMITTEE
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E. S. Thorpe
James Powell
William H. Davis
} Judges

Price Lists furnished the Trade on application, inclosing business card. For sale by the Trade generally.
Ask your Jeweler to see the MARION
WATCHES.

BEWARE of worthless imitations with which the country is flooded. To avoid imposition, see that the words MARION, N. J., are engraved on the plate over the Main-Spring Barrel. All others are spurious.

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The End of the World.

A LOVE STORY.*

BY EDWARD EGGLESTON.

CHAPTER I.

IN LOVE WITH A DUTCHMAN.

"I don't believe that you'd care a cent if she did marry a Dutchman! She might as well as to marry some white folks I know."

Samuel Anderson made no reply. It would be of no use to reply. Shrews are tamed only by silence. Anderson had long since learned that the little shred of influence which remained to him in his own house would disappear whenever his teeth were no longer able to shut his tongue securely in. So now, when his wife poured out this hot lava of *argumentum ad hominem*, he closed the teeth down in a deadlock way over the tongue, and compressed the lips tightly over the teeth, and shut his finger-nails into his work-hardened palms. And then, distrusting all these precautions, fearing lest he should be unable to hold on to his temper even with this grip, the little man strode out of the house with his wife's shrill voice in his ears.

TAKING AN OBSERVATION.

Mrs. Anderson had good reason to fear that her daughter was in love with a "Dutchman," as she phrased it in her contempt. The few Germans who had penetrated to the West at that time were looked upon with hardly more favor than the Californians feel for the almond-eyed Chinaman. They were foreigners, who would talk gibberish instead of the plain English which everybody could understand, and they were not yet civilized enough to like the yellow saleratus-biscuit and the "salt-rising" bread of which their neighbors were so fond. Reason enough to hate them!

Only half an hour before this outburst of Mrs. Anderson's, she had set a trap for her daughter Julia, and had fairly caught her.

"Jule! Jule! O Jul-y-e-oe!" she had called.

And Julia, who was down in the garden hoeing a bed in which she meant to plant some "Johnny-jump-ups," came quickly toward the house, though she knew it would be of no use to come quickly. Let her come quickly, or let her come slowly, the rebuke was sure to greet her all the same.

"Why don't you come, when you're called, *I'd* like to know! You're never in reach when you're wanted, and you're good-for-nothing when you are here!"

Julia Anderson's earliest lesson from her mother's lips had been that she was good for nothing. And every day and almost every hour since had brought her repeated assurances that she was good for nothing. If she had not been good for a great deal, she would long since have been good for nothing as the result of such teaching. But though this was not the first, nor the thousandth, nor the ten thousandth time that she had been told that she was good for nothing, the accustomed insult seemed to sting her now more than ever. Was it that, being almost eighteen, she was beginning to feel the woman blossoming in her nature? Or, was it that the tender words of August Wehle had made her sure that she was good for something, that now her heart felt her mother's insult to be a stale, selfish, ill-natured lie?

"Take this cup of tea over to Mrs. Malcolm's, and tell her that it a'n't quite as good as what I borried of her last week. And tell her that they'll be a new-fangled preacher at the school-house a Sunday, a Millerite, or somethin', a preachin' about the end of the world."

Julia did not say "Yes, ma'am," in her usually meek style. She smarted a little yet from the harsh words, and so went away in silence.

Why did she walk fast? Had she noticed that August Wehle, who was "breaking up" her father's north field, was just plowing down the west side of his land? If she hastened, she might reach the cross-fence as he came round to it, and while he was yet hidden from the sight of the house by the turn of the hill. And would not a few words from August Wehle be pleasant to her ears after her mother's sharp depreciation? It is at least safe to conjecture that some such feeling made her hurry through the long, waving timothy of the meadow, and made her cross the log that spanned the brook without ever so much as stopping to look at the minnows glancing about in the water flecked with the sunlight that struggled through the boughs of the water-willows. For, in her thorough loneliness, Julia Anderson had come to love the birds, the squirrels, and the fishes as companions, and in all her life she had never before crossed the meadow brook without stooping to look at the minnows.

A TALK WITH A PLOWMAN.

All this haste Mrs. Anderson noticed. Having often scolded Julia for "talking to the fishes like a fool," she noticed the omission. And now she only waited until Julia was over the hill to take the path round the fence under shelter of the blackberry thicket, until she came to the clump of elders, from the midst of which she could plainly see if any conversation should take place between her Julia and the comely young Dutchman.

In fact, Julia need not have hurried so much. For August Wehle had kept one eye on his horses and the other on the house all that day. It was the quick look of intelligence between the two at dinner that had aroused the mother's suspicions. And Wehle had noticed the work on the garden bed, the call to the house, and the starting of Julia on the path toward Mrs. Malcolm's. His face had grown hot, and his hand had trembled. For once he had failed to see the stone in his way, until the plow was thrown clean from the furrow. And when he came to the shade of the butternut-tree by which she must pass, it had seemed to him imperative that the horses should rest. Besides, the hames-string wanted tightening on the bay, and old Dick's throat-latch must need a little fixing. He was not sure that the clevis-pin had not been loosened by the collision with the stone just now. And so, upon one pretext and another, he managed to delay starting his plow until Julia came by, and then, though his heart had counted all her steps from the door-stone to the tree, then he looked up surprised. Nothing could be so astonishing to him as to see her there! For love is needlessly crafty, it has always an instinct of concealment, of disguise, of indirection about it. The boy, and especially the girl, who will tell the truth in regard to a love affair is a miracle of veracity. But there are such, and they are to be reverenced—with the reverence paid to martyrs.

On her part, Julia Anderson had walked on as though she meant to pass the young plowman by, until he spoke, and then she started, and blushed, and stopped, and nervously broke off the top of a last year's iron-weed, and began to break it into bits while she talked, looking down most of the time, but lifting her eyes to his now and then. And to the sun-browned but delicate-faced young German it seemed a vision of Paradise—every glimpse of that fresh girl's face in the deep shade of the sun-bonnet. For girls' faces can never look so sweet in this generation as they did to the boys who caught sight of them, hidden away, precious things, in the obscurity of a tunnel of pasteboard and calico!

This was not their first love-talk. Were they engaged? Yes, and no. By all the speech their eyes were capable of in school, and of late by words, they were engaged in loving one another, and in telling one another of it. But they were young, and separated by circumstances, and they had hardly begun to think of marriage yet. It was enough for the present to love and be loved. It is the most delightful stage of a love-affair when the present is sufficient, and there is no past or future. And so August hung his elbow around the top of the bay horse's hames, and talked to Julia. It is the highest praise of the German heart that it oves flowers and little children; and like a German and like a lover that he was, August began to speak of the anemones and the violets that were already blooming in the corners of the fence. Girls in love are not apt to say anything very fresh. And Julia only said she thought the flowers seemed happy in the sunlight. In answer to this speech, which seemed to the lover a bit of inspiration, he quoted from Schiller the lines:

"Yet weep, soft children of the spring;
The feelings Love alone can bring
Have been denied to you!"

With the quick and crafty modesty of her sex, Julia evaded this very pleasant shaft by saying: "How much you know, August! How do you learn it?"

And August was pleased, partly because of the compliment, but chiefly because in saying it Julia had

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brought the sun-bonnet in such a range that he could see the bright eyes and blushing face at the bottom of this *camera oscura*. He did not hasten to reply. While the vision lasted he enjoyed the vision. Not until the sun-bonnet dropped did he take up the answer to her question.

"I don't know much, but what I do know I have learned out of your Uncle Andrew's books."

"Do you know my Uncle Andrew? What a strange man he is! He never comes here and we never go there, and my mother never speaks to him, and my father doesn't often have anything to say to him. And so you have been at his house. They say he has all up-stairs full of books, and ever so many cats and dogs and birds and squirrels about. But I thought he never let anybody go up-stairs."

"He lets me," said August, when she had ended her speech and dropped her sun-bonnet again out of the range of his eyes, which, in truth, were too steadfast in their gaze. "I spend many evenings up-stairs." August had just a trace of German in his idiom.

"What makes Uncle Andrew so curious, I wonder?"

"I don't exactly know. Some say he was treated not just right by a woman when he was a young man. I don't know. He seems happy. I don't wonder a man should be curious though when a woman that he loves treats him not just right. Any way, if he loves her with all his heart, as I love Jule Anderson!"

A LITTLE RUSTLE BROUGHT HER TO CONSCIOUSNESS.

These last words came with an effort. And Julia just then remembered her errand, and said, "I must hurry," and, with a country girl's agility, she climbed over the fence before August could help her, and gave him another look through her bonnet-telescope from the other side, and then hastened on to return the tea, and to tell Mrs. Malcolm that there was to be a Millerite preacher at the school-house on Sunday night. And August found that his horses were quite cool, while he was quite hot. He cleaned his mold-board and swung his plow round, and then, with a "Whoa! haw!" and a pull upon the single line which Western plowmen use to guide their horses, he drew the team into their place, and set himself to watching the turning of the rich, fragrant black earth. And even as he set his plowshare, he set his purpose to overcome all obstacles, and to marry Julia Anderson. With the same steady, irresistible, onward course would he overcome all that lay between him and the soul that shone out of the face that dwelt in the bottom of the sun-bonnet.

From her covert in the elder-bushes Mrs. Anderson had seen the parley, and her cheeks had also grown hot, but from a very different emotion. She had not heard the words. She had seen the loitering girl and the loitering plowboy, and she went back to the house vowing that she'd "teach Jule Anderson how to spend her time talking to a Dutchman." And yet the more she thought of it, the more she was satisfied that it wasn't best to "make a fuss" just yet. She might hasten what she wanted to prevent. For though Julia was obedient and mild in word, she was none the less a little stubborn, and in a matter of this sort might take the bit in her teeth.

And so Mrs. Anderson had recourse, as usual, to her husband. She knew she could browbeat him. She demanded that August Wehle should be paid off and discharged. And when Anderson had hesitated, because he feared he could not get another so good a hand, and for other reasons, she burst out into the declaration:

"I don't believe that you'd care a cent if she did marry a Dutchman! She might as well as to marry some white folks I know."

CHAPTER II.

An Explosion.

It was settled that August was to be quietly discharged at the end of his month, which was Saturday night. Neither he nor Julia must suspect any opposition to their attachment, nor any discovery of it, indeed. This was settled by Mrs. Anderson. She usually settled things. First, she settled upon the course to be pursued. Then she settled her husband. He always made a show of resistance. His dignity required a show of resistance. But it was only a show. He always meant to surrender in the end. Whenever his wife ceased her fire of small-arms and herself hung out the flag of truce, he instantly capitulated. As in every other dispute, so in this one about the discharge of the "miserable, impudent Dutchman," Mrs. Anderson attacked her husband at all his weak points, and she had learned by heart a catalogue of his weak points. Then, when he was sufficiently galled to be entirely miserable; when she had expressed her regret that she hadn't married somebody with some heart, and that she had ever left her father's house, for her *father* was *always* good to her; and when she had sufficiently reminded him of the lover she had given up for him, and of how much *he* had loved her, and how miserable she had made *him* by loving Samuel Anderson—when she had conducted the quarrel through all the preliminary stages, she always carried her point in the end by a *coup de partie* somewhat in this fashion:

"That's just the way! Always the way with you men! I suppose I must give up to you as usual. You've lorded it over me from the start. I can't even have the management of my own daughter. But I do think that after I've let you have your way in so many things, you might turn off that fellow. You might let me have my way in one little thing, and you *would* if you cared for me. You know how liable I am to die at any moment of heart-disease, and yet you will prolong this excitement in this way."

Now, there is nothing a weak man likes so much as to be considered strong, nothing a henpecked man likes so much as to be regarded a tyrant. If you ever hear a man boast of his determination to rule his own house, you may feel sure that he is subdued. And a henpecked husband always makes a great show of opposing everything that looks toward the enlargement of the work or privileges of women. Such a man always insists on the shadow of authority because he can not have the substance. It is a great satisfaction to him that his wife can never be president, and that she can not make speeches in prayer-meeting. While he retains these badges of superiority, he is still in some sense head of the family.

So when Mrs. Anderson loyally reminded her husband that she had always let him have his own way, he believed her because he wanted to, though he could not just at the moment recall the particular instances. And knowing that he must yield, he rather liked to yield as an act of sovereign grace to the poor oppressed wife who begged it.

"Well, if you insist on it, of course, I will not refuse you," he said; "and perhaps you are right." He had yielded in this way almost every day of his married life, and in this way he yielded to the demand that August should be discharged. But he agreed with his wife that Julia should not know anything about it, and that there must be no leave-taking allowed.

The very next day Julia sat sewing on the long porch in front of the house. Cynthy Ann was getting dinner in the kitchen at the other end of the hall, and Mrs. Anderson was busy in her usual battle with dirt. She kept the house clean, because it gratified her combativeness and her domineering disposition to have the house clean in spite of the ever-encroaching dirt. And so she scrubbed and scolded, and scolded and scrubbed, the scrubbing and scolding agreeing in time and rhythm. The scolding was the vocal music, the scrubbing an accompaniment. The concordant discord was perfect. Just at the moment I speak of there was a lull in her scolding. The symphonious scrubbing went on as usual. Julia, wishing to divert the next thunder-storm from herself, erected what she imagined might prove a conversational lightning-rod, by asking a question on a topic foreign to the theme of the last march her mother had played and sung so sweetly with brush and voice.

"Mother, what makes Uncle Andrew so queer?"

"I don't know. He was always queer." This was spoken in a staccato, snapping-turtle way. But when one has lived all one's life with a snapping-turtle, one doesn't mind. Julia did not mind. She was curious to know what was the matter with her uncle, Andrew Anderson. So she said:

"I've heard that some false woman treated him cruelly; is that so?"

Julia did not see how red her mother's face was, for she was not regarding her.

"Who told you that?" Julia was so used to hearing her mother speak in an excited way that she hardly noticed the strange tremor in this question.

"August."

The symphony ceased in a moment. The scrubbing-brush dropped in the pail of soapsuds. But the vocal storm burst forth with a violence that startled even Julia.

"August said *that*, did he? And you listened, did you? You listened to *that*? *You* listened to that? *You listened* to *that*? Hey? He slandered your mother. You listened to him slander your mother!" By this time Mrs. Anderson was at white heat. Julia was speechless. "*I* saw you yesterday flirting with that *Dutchman*, and listening to his abuse of your mother! And now you *insult* me! Well, to-morrow will be the

GOTTLIEB.

last day that that Dutchman will hold a plow on this place. And you'd better look out for yourself, miss! You——"

Here followed a volley of epithets which Julia received standing. But when her mother's voice grew to a scream, Julia took the word.

"Mother, hush!"

It was the first word of resistance she had ever uttered. The agony within must have been terrible to have wrung it from her. The mother was stunned with anger

and astonishment. She could not recover herself enough to speak until Jule had fled half-way up the stairs. Then her mother covered her defeat by screaming after her, "Go to your own room, you impudent hussy! You know I am liable to die of heart-disease any minute, and you want to kill me!"

CHAPTER III.

A FAREWELL.

Mrs. Anderson felt that she had made a mistake. She had not meant to tell Julia that August was to leave. But now that this stormy scene had taken place, she thought she could make a good use of it. She knew that her husband co-operated with her in her opposition to "the Dutchman," only because he was afraid of his wife. In his heart, Samuel Anderson could not refuse anything to his daughter. Denied any of the happiness which most men find in loving their wives, he found consolation in the love of his daughter. Secretly, as though his paternal affection were a crime, he caressed Julia, and his wife was not long in discovering that the father cared more for a loving daughter than for a shrewish wife. She watched him jealously, and had come to regard her daughter as one who had supplanted her in her husband's affections, and her husband as robbing her of the love of her daughter. In truth, Mrs. Samuel Anderson had come to stand so perpetually on guard against imaginary encroachments on her rights, that she saw enemies everywhere. She hated Wehle because he was a Dutchman; she would have hated him on a dozen other scores if he had been an American. It was offense enough that Julia loved him.

So now she resolved to gain her husband to her side by her version of the story, and before dinner she had told him how August had charged her with being false and cruel to Andrew many years ago, and how Jule had thrown it up to her, and how near she had come to dropping down with palpitation of the heart. And Samuel Anderson reddened, and declared that he would protect his wife from such insults. The notion that he protected his wife was a pleasant fiction of the little man's, which received a generous encouragement at the hands of his wife. It was a favorite trick of hers to throw herself, in a metaphorical way, at his feet, a helpless woman, and in her feebleness implore his protection. And Samuel felt all the courage of knighthood in defending his inoffensive wife. Under cover of this fiction so flattering to the vanity of an overawed husband, she had managed at one time or another to embroil him with almost all the neighbors, and his refusal to join fences had resulted in that crooked arrangement known as a "devil's lane" on three sides of his farm.

Julia dared not stay away from dinner, which was miserable enough. She did not venture so much as to look at August, who sat opposite her, and who was the most unhappy person at the table, because he did not know what all the unhappiness was about. Mr. Anderson's brow foreboded a storm, Mrs. Anderson's face was full of an earthquake, Cynthy Ann was sitting in shadow, and Julia's countenance perplexed him. Whether she was angry with him or not, he could not be sure. Of one thing he was certain: she was suffering a great deal, and that was enough to make him exceedingly unhappy.

Sitting through his hurried meal in this atmosphere surcharged with domestic electricity, he got the notion—he could hardly tell how—that all this lowering of the sky had something to do with him. What had he done? Nothing. His closest self-examination told him that he had done no wrong. But his spirits were depressed, and his sensitive conscience condemned him for some unknown crime that had brought about all this disturbance of the elements. The ham did not seem very good, the cabbage he could not eat, the corn-dodger choked him, he had no desire to wait for the pie. He abridged his meal, and went out to the barn to keep company with his horses and his misery until it should be time to return to his plow.

Julia sat and sewed in that tedious afternoon. She would have liked one more interview with August before he left. Looking through the open hall, she saw him leave the barn and go toward his plowing. Not that she looked up. Hawk never watched chicken more closely than Mrs. Anderson watched poor Jule. But out of the corners of her eyes Julia saw him drive his horses before him from the stable. As the field in which he worked was on the other side of the house from where she sat she could not so much as catch a glimpse of him as he held his plow on its steady course. She wished she might have helped Cynthy Ann in the kitchen, for then she could have seen him, but there was no chance for such a transfer.

Thus the tedious afternoon wore away, and just as the sun was settling down so that the shadow of the elm in the front-yard stretched across the road into the cow-pasture, the dead silence was broken. Julia had been wishing that somebody would speak. Her mother's sulky speechlessness was worse than her scolding, and Julia had even wished her to resume her storming. But the silence was broken by Cynthy Ann, who came into the hall and called, "Jule, I wish you would go to the barn and gether the eggs; I want to make some cake."

Every evening of her life Julia gathered the eggs, and there was nothing uncommon in Cynthy Ann's making cake, so that nothing could be more innocent than this request. Julia sat opposite the front-door, her mother sat farther along. Julia could see the face of Cynthy Ann. Her mother could only hear the voice, which was dry and commonplace enough. Julia thought she detected something peculiar in Cynthy's manner. She would as soon have thought of the big oak gate-posts with their round ball-like heads telegraphing her in a sly way, as to have suspected any such craft on the part of Cynthy Ann, who was a good, pious, simple-hearted, Methodist old maid, strict with herself, and censorious toward others. But there stood Cynthy making some sort of gesture, which Julia took to mean that she was to go quick. She did not dare to show any eagerness. She laid down her work, and moved away listlessly. And evidently she had been too slow. For if August had been in sight when Cynthy Ann called her, he had now disappeared on the other side of the hill. She loitered along, hoping that he would come in sight, but he did not, and then she almost smiled to think how foolish she had been in imagining that Cynthy Ann had any interest in her love-affair. Doubtless Cynthy sided with her mother.

And so she climbed from mow to mow gathering the eggs. No place is sweeter than a mow, no occupation can be more delightful than gathering the fresh eggs—great glorious pearls, more beautiful than any that men dive for, despised only because they are so common and so useful! But Julia, gliding about noiselessly, did not think much of the eggs, did not give much attention to the hens scratching for wheat kernels amongst the straw, nor to the barn swallows chattering over the adobe dwellings which they were building among the rafters above her. She had often listened to the love-talk of these last, but now her heart was too heavy to hear. She slid down to the edge of one of the mows, and sat there a few feet above the threshing-floor with her bonnet in her hand, looking off sadly and vacantly. It was pleasant to sit here alone and think, without the feeling that her mother was penetrating her thoughts.

A little rustle brought her to consciousness. Her face was fiery red in a minute. There, in one corner of the threshing-floor, stood August, gazing at her. He had come into the barn to find a single-tree in place of one which had broken. While he was looking for it, Julia had come, and he had stood and looked, unable to decide whether to speak or not, uncertain how deeply she might be offended, since she had never once let her eyes rest on him at dinner. And when she had come to the edge of the mow and stopped there in a reverie, August had been utterly spell-bound.

A minute she blushed. Then, perceiving her opportunity, she dropped herself to the floor and walked up to August.

"August, you are to be turned off to-morrow night."

"What have I done? Anything wrong?"

"No."

"Why do they send me away?"

"Because—because—" Julia stopped.

But silence is often better than speech. A sudden intelligence came into the blue eyes of August. "They turn me off because I love Jule Anderson."

Julia blushed just a little.

"I will love her all the same when I am gone. I will always love her."

Julia did not know what to say to this passionate speech, so she contented herself with looking a little grateful and very foolish.

"But I am only a poor boy, and a Dutchman at that"—he said this bitterly—"but if you will wait, Jule, I will show them I am of some account. Not good enough for you, but good enough for *them*. You will——"

"I will wait—*forever*—for *you*, Gus." Her head was down, and her voice could hardly be heard. "Good-by." She stretched out her hand, and he took it trembling.

"Wait a minute." He dropped the hand and taking a pencil wrote on a beam:

"March 18th, 1843."

"There, that's to remember the Dutchman by."

"Don't call yourself a Dutchman, August. One day in school, when I was sitting opposite to you, I learned this definition, 'August: grand, magnificent,' and I looked at you and said, Yes, that he is. August is grand and magnificent, and that's what you are. You're just grand!"

I do not think he was to blame. I am sure he was not responsible. It was done so quickly. He kissed her forehead and then her lips, and said good-by and was gone. And she, with her apron full of eggs and her cheeks very red—it makes one warm to climb—went back to the house, resolved in some way to thank Cynthy Ann for sending her, but Cynthy Ann's face was so serious and austere in its look that Julia concluded she must have been mistaken, Cynthy Ann couldn't have known that August was in the barn. For all she said was:

"You got a right smart lot of eggs, didn't you? The hens is beginning to lay more peart since the warm spell got in."

CHAPTER IV.

A COUNTER-IRRITANT.

"Vot you kits doornt off vor? Hey?" Gottlieb Wehle always spoke English, or what he called English, when he was angry. "Vot for? Hey?"

All the way home from Anderson's on that Saturday night, August had been, in imagination, listening to the rough voice of his honest father asking this question, and he had been trying to find a satisfactory answer to it. He might say that Mr. Anderson did not want to keep a hand any longer. But that would not be true. And a young man with August's clear blue eyes was not likely to lie.

"Vot vor ton't you not shpeak? Can't you virshta blain Eenglish ven you hears it? Hey? You a'n't no teef vot shteels I shposes, unt you ton't kit no troonks mit vishky? Vot you too tat you pe shamt of? Pin lazin' rount? Kon you nich Eenglish shprachen? Oot mit id do vonst!"

"I did not do anything to be ashamed of," said August. And yet he looked ashamed.

"You tidn't pe no shamt, hey? You tidn't! Vot vor you loogs so leig a teef in der bentenshry? Vot for you sprachen not mit me ven ich sprachs der blainest zort ov Eenglish mit you? You kooms sneaggin heim Zaturtay nocht leig a tog vots kot kigt, unt's got his dail dween his leks; and ven I aks you in blain Eenglish vot's der madder, you loogs zheepish leig, und says you a'n't tun nodin. I zay you tun sompin. If you a'n't tun nodin den, vy don't you dell me vot it is dat you has tun? Hey?"

All this time August found that it was getting harder and harder to tell his father the real state of the case. But the old man, seeing that he prevailed nothing, took a cajoling tone.

"Koom, August, mine knabe, ton't shtand dare leig a vool. Vot tit Anterson zay ven he shent you avay?"

"He said that I'd been seen a-talking to his daughter, Jule Anderson."

"Vell, you nebber said no hoorm doo Shule, tid you? If I dought you said vot you zhoodn't zay doo Shule, I vood shust drash you on der shpot! Tid you gwarl mit Shule, already?"

[The above Story, **"The End of the World,"** will be continued from where it leaves off here, in *Hearth and Home* for April 27 (Vol. IV., No. 17), which can be obtained of any Newsdealer; or of the Publishers (Orange Judd & Co., 245 Broadway, New York), who will send it postpaid for 10 cents. The succeeding chapters of this Story will be found VERY interesting. See page 168.

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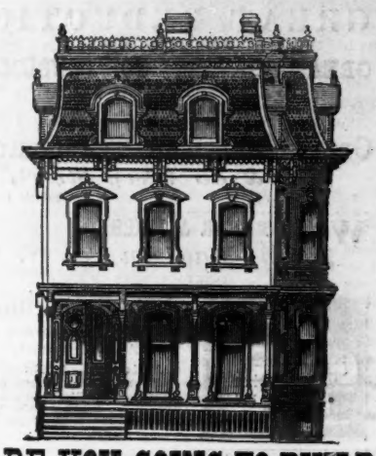

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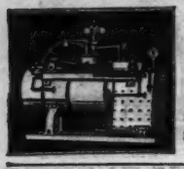

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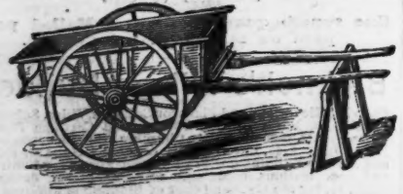

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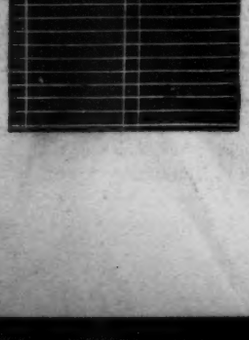

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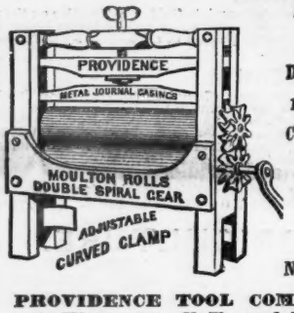

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